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MOTOR AGE

GRANT AND ALCO AGAIN WIN VANDERBILT

Winner, Driving His 1909 Car Averages 65.1 Miles per Hour, Breaking Course Record—Beats Dawson in Marmon by 25 Seconds—Aitken Is Third

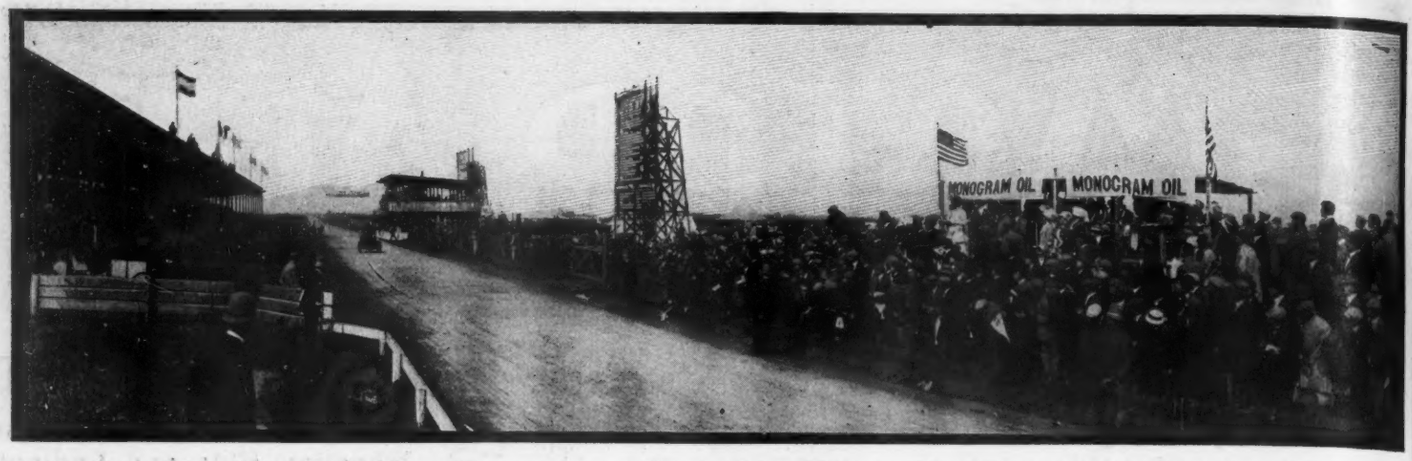
Falcars Run One, Two in the Wheatley Hills and Endicott in Cole Captures the Massapequa Race With Roberts in the Abbott-Detroit Second

NEW YORK, Oct. 2—Harry F. Grant, driving a 1909 six-cylinder Alco car, a car of American manufacture, won the 1910 Vanderbilt cup race, which was run on the Long Island motor parkway yesterday, and in so doing he became the first one to twice win the classic. Also it is the first time that the same man and the same car ever has captured a road racing classic, either in this country or abroad, for, with the exception of tires, clutch, spark plugs and wiring, the Alco was the same as run last year in the Vanderbilt, which was won by Grant. Grant averaged 65.18 miles per hour for the 278.08 miles, and in so doing established a new Vanderbilt record, beating the 64.3 of George Robertson, made 2 years ago in a Locomobile.

Sharing honors with Grant were Gelnaw and Bill Endicott. The former won the Wheatley Hills sweepstakes in a Falcar, while his teammate, Pearce, was second. The Massapequa, for the 161-230 cars, went to Bill Endicott, in the Cole, with Roberts, in the Abbott-Detroit, second. In the Vanderbilt ten cars finished, in the Wheatley two and in the Massapequa three—fifteen out of the forty-two in the three races.

Second to the Alco was the Marmon, driven by Joe Dawson, beaten only 25 seconds for the premier cup of the world, while only 1 minute 6 seconds back of Dawson was another Hoosier, Johnny Ait-

Harry F. Grant, Second Time Winner of Vanderbilt and Alco on Westbury Turn

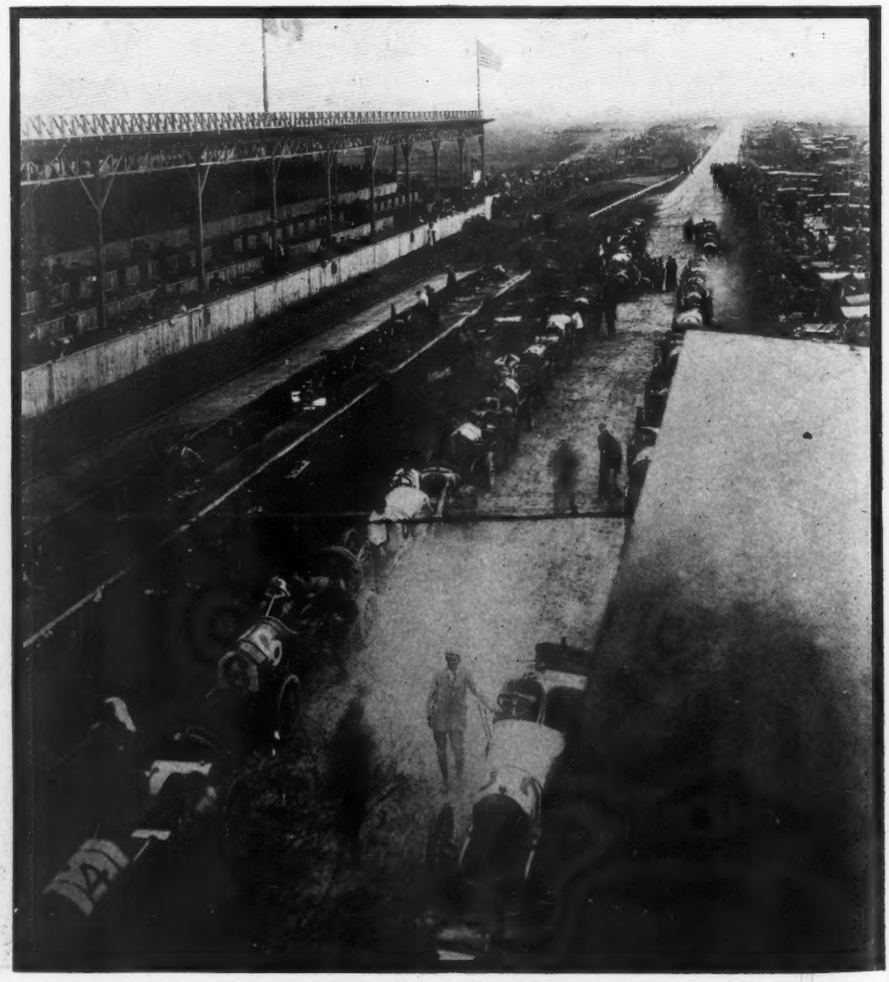


LOOKING UP THE HOMESTRETCH PAST THE GRAND STAND, WITH THE MONSTER SCORE BOARD AND PRESS STAND ON THE RIGHT. THIS PART OF THE CIRCUIT IS THE CEMENT PARKWAYWHICH WAS ROUGH BECAUSE OF CRACKS IN THE SURFACE

ken in a National. Also finishing were Disbrow, in a National; Mulford, in a Lozier; Fleming, in a Pope-Hartford; Mitchell, in a Simplex; Hearne, in a Benz; Harding, in a Stoddard-Dayton, and Dingley, in a Pope-Hartford. This made ten in all caught by the judges for the full twenty-two laps of the race, while also running at the time the flag dropped were eight others, including Stillman, in an Oldsmobile; Bruce-Brown, in a Benz; Livingstone, in a National; Jones, in an Amplex; Hanshue, in an Apperson; Wishart, in a Mercedes, and Limberg, in a Houpt-Rockwell. This left eighteen survivors out of a field of thirty that started in the gray dawn of a rainy October morning.

It was a brilliant race, undoubtedly the greatest of all the Vanderbilts from a sporting standpoint—a race that gave the 300,000 spectators the most exciting thrills any of them ever experienced at a Long Island race—a race where any one of three men might have won on the final round, but it was a race from which the grim reaper exacted a heavy toll. Two mechanics were killed, several drivers and their helpers were more or less injured, spectators were hurt, and now there is going up a cry for a radical improvement in the way of handling the immense crowds that watch the big races. Undoubtedly it was the almost utter lack of protection for public and contestants in the back stretch that caused most of the accidents and kept drivers, mechanics and officials in a state of nervous excitement from start to finish. Death claimed Matthew Bacon, mechanic on the Columbia, on the very first lap, when tire trouble caused Harold Stone to lose control of the car after climbing the grade of the bridge that spans the railroad tracks at Meadowbrook, and which is part of the parkway. The Columbia plunged off the bridge, and in the fall the neck of Bacon was broken, while Stone was seriously injured. At first it was reported that it was Stone himself who had been killed, but this confusion was caused by the fact that Bacon was carrying Stone's watch, on which the latter's name was engraved. Later Bacon was identified by the Columbia people.

The other casualty involving a participant of the race occurred in the eighteenth lap, when Louis Chevrolet's Marquette-Buick plunged off the road, hit a touring car and turned over, catching beneath the wreck Charles Miller, Chevrolet's mechanic, injuring him so that he died shortly after. Chevrolet himself had a marvelous escape. He was thrown from the car and, outside of several bruises, he came out in fairly good shape. One not seeing the accident or visiting the scene of it afterwards hardly would believe that such a thing could occur without greater loss of life. Chevrolet, earlier in the race, had seemed to have a walk-over. He was averaging 75 miles an hour for almost the first half of the struggle, when he broke a chain and had spark plug and magneto trouble that cost him his lead. Desperate, he flung what little caution he possesses



AT THE START OF THE VANDERBILT THE THIRTY CARS WERE LINED UP IN TWO ROWS AND SENT AWAY AT 15-SECOND INTERVALS JUST AT DAYBREAK

THE MASSAPEQUA TURN WAS ONE OF THE MOST DANGEROUS ON THE CIRCUIT AND WAS MADE WORSE BY THE DUST AND THE CROWDS. THE LANCIA PADULA'S ABBOTT-DETROIT AND BEARDSLEY'S SIMPLEX WERE WRECKED HERE

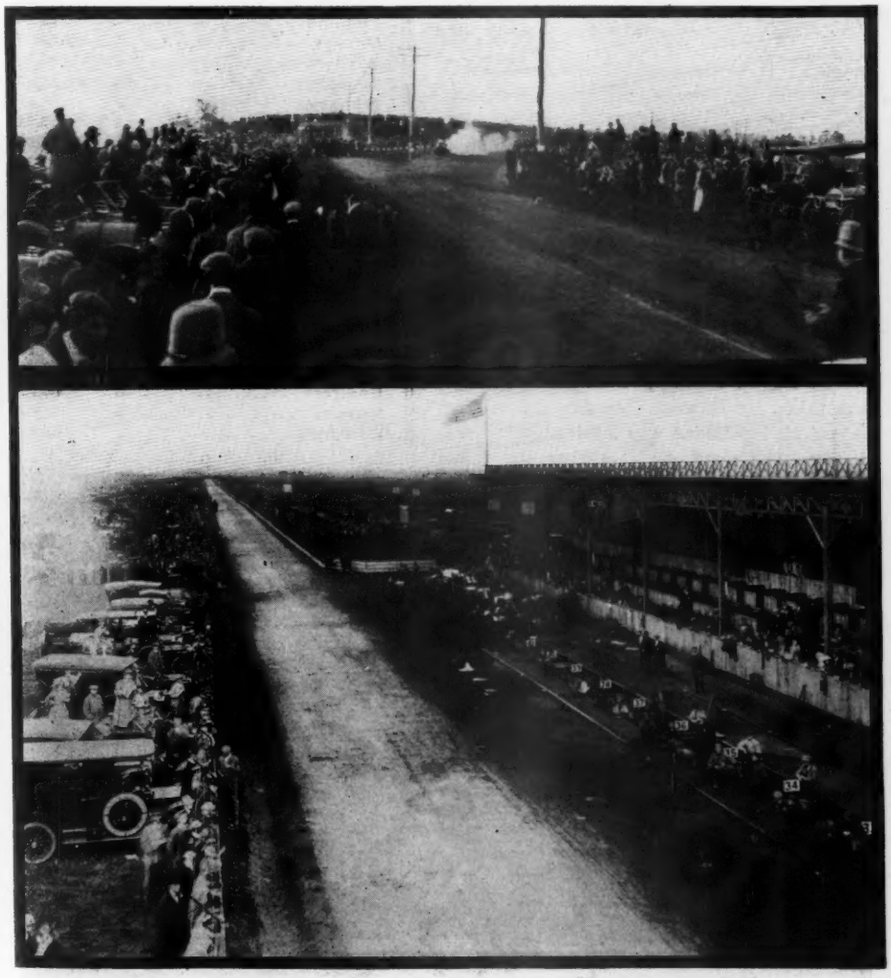
to the wind and beat it for fair. As he struck the rough stretch in Hicksville a deep rut swerved him and he plunged off the road. A steering knuckle broke and the big car ran amuck. It climbed through a deep ditch, ran into a yard in which a touring car was standing, hit the car and hurdled it, then stood on its nose and fell on driver and mechanic, coming to a stop at the very edge of the porch of the farmhouse. Strange to say, while it demolished the touring car, the three women who occupied it escaped with little injury.

In the hospital as a result of the race is Billy Knipper, driver of the Lancia in the Massapequa, in which he was leading by a big margin when he went over the bank at Massapequa lodge, which also proved the Waterloo of Padula in the Abbott-Detroit, and Beardsley in the Simplex. In the mix-up Knipper was not much injured, while his mechanic, August Guichard, was slightly bruised. Knipper and Guichard were just recovering from the accident in training in which the Lancia almost was put out of business by a collision in the fog with Burman's Marquette-Buick. Padula, who hit a telegraph pole at this hoodoo turn, which is the same one which put out George Robertson, was thrown out and severely injured.

In addition to the casualties and accidents to the contestants in the race itself, several spectators were more or less injured by venturing on the course and being struck by the racing cars themselves The course was so poorly guarded that the back stretch was overrun with people who recked little of their danger, and who greatly handicapped the drivers. No sooner would a car pass than the people would close in on the road and the next driver would take his life in his hand in passing through the throng. The people crowded so close that several of the drivers reported being slapped on the back by onlookers as they drove by. One hoodlum threw a bottle which struck Aitken's mechanic, stunning him so Aitken had to support him with one hand and steer with the other for awhile. This congestion also had a most important bearing on the final result, in that it was the striking of a couple of spectators by Joe Dawson, in the Marmon, that gave Grant his opportunity. Dawson not only stopped to see what damage he had done, but he also made another stop at the pits to ask that help be sent to the back stretch. This, it is calculated, cost him at least 2 minutes, which could have been used to great advantage by Dawson.

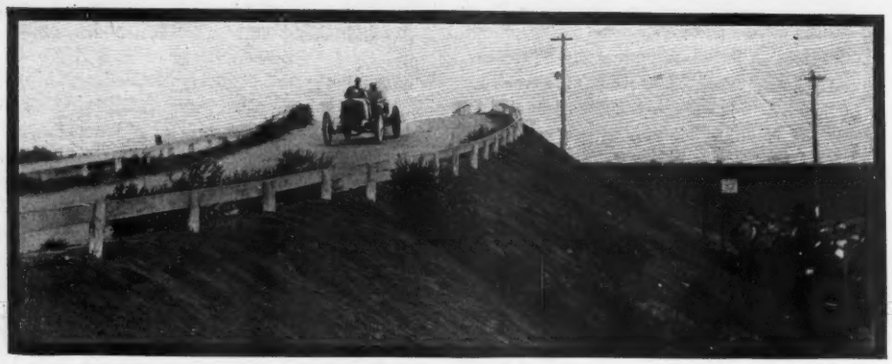
The wire fences in the home stretch helped protect that part of the course, but still, near the end of the race, spectators jumped the wire fence and ran onto the course. The Pinkertons stationed along here were about as useful as cigar store Indians, and did little to stem the tide of humanity. That there were no accidents near the stand was wonderful

The finish of the big race was spectacular indeed and more than repaid the spectators for the gloom occasioned by the ac-



THE UPPER ILLUSTRATION SHOWS A CAR NEARLY GOING OVER THE DANGEROUS MASSAPEQUA TURN THE LOWER ILLUSTRATION SHOWS PARKWAY PAST GRAND STAND

TERRIBLE DUST ON MASSAPEQUA TURN CREATED WHEN KNIPPER IN LANCIA CAR WENT OVER THE TURN AND WAS WRECKED. THE CAR FOLLOWING KNIPPER IS SEEN IN THE DUST



MULFORD IN LOZIER ON BRIDGE WHERE COLUMBIA WAS WRECKED; THE BROKEN FENCE ON BRIDGE CAN BE SEEN IN ILLUSTRATION

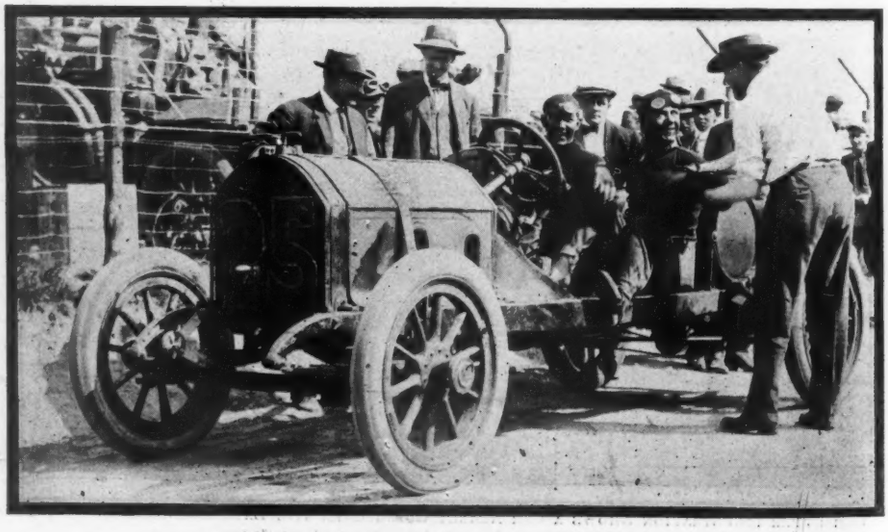
THEIR FASTEST LAPS

Driver—	Lap	M.P.H.
Vanderbilt		
Grant	13	80.25
Aitken	13	79.69
A. Chevrolet	4	75.84
Burman	8	74.72
Schufler	8	73.99
Harroun	4	71.32
Brown	19	70.55
Matson	7	70.55
Belcher	2	70.55
Dawson	2	70.44
Hanshue	11	70.22
De Hymel	7	70.22
Mulford	2	69.58
Fleming	2	69.26
Dingley	2	69.15
Wishart	2	69.15
Beardsley	11	68.53
Wallace	2	68.33
Livingstone	9	67.92
Disbrow	3	67.92
Harding	17	67.81
Hearne	2	67.51
Wheatley Hills		
Heinemann	3	65.54
Gelnaw	10	62.76
Pearce	2	61.58
Juhasz	4	56.52
Basle	2	54.69
Massapequa		
Knipper	6	62.94
Endicott	3	60.75
Roberts	5	57.31
Edmunds	4	53.41

PROFITS OF THE RACE

While the Motor Cups Holding company has made no report as to the financial side of the big meet, it is more than certain that it made a big profit. As a usual thing, road-racing is not a profitable venture, but with a plant such as exists on Long Island it is possible to make money out of such contests. The Motor Cups Holding company does not have to build a grandstand each year; neither does it have to spend a lot of money on the roads because of being able to use a stretch of the parkway. Therefore there is an excellent opportunity to make a profit. It is more than probable that the total receipts of the recent venture came close to $50,000, of which amount there must have been a surplus from which to declare a dividend to holders of stock in the parkway. The entry fees alone amounted to $18,000, while with grandstand seats selling at $5 each, and parking spaces in proportion, there was a fine chance to get on velvet. The Motor Contest Association alone paid $1,000 for a parking space for the use of its members, while single parking spaces in front of the grandstand and between the parkway proper and the wire fence which kept the spectators at bay brought as high as $60. It is a matter of record that last year's Vanderbilt likewise showed a profit, but it is safe to say that it did not clean up as much as this year's event. As to how the grand prix next week will turn out it is hard to say, but with the attractions of the foreign drivers there should be a big crowd.

cidents. It was one of those finishes similar to that between Bourque, in the Knox, and Chevrolet, in the Buick, at Crown Point last year, where the two started their last lap less than a minute apart. Here it was an unexpected puncture that produced the uncertainty and made Grant put up a spectacular last lap to snatch for the second consecutive time the honors of the classic. Just finishing his twenty-first lap, Grant had to pull up at the pits to change a tire, which operation cost him almost 2 good minutes, of which advantage was taken by Dawson. At the end of the twentieth lap Grant was 2 minutes 13 seconds to the good, but entering the final

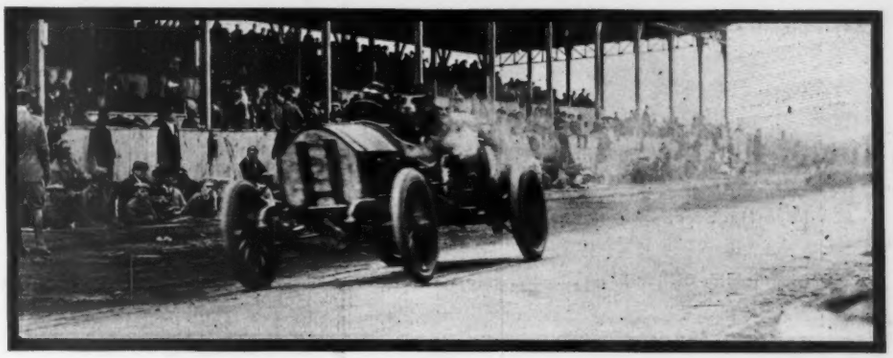


JOE DAWSON IN MARMON, WHICH FINISHED SECOND

THIS VIEW OF THE CEMENT PARKWAY SHOWS THE LONG ISLAND RAILWAY TO THE RIGHT, AND FROM WHICH THOUSANDS WERE BROUGHT TO THE RACE ON THE EARLY MORNING TRAINS

TIRE CHANGES AT PITS

No.	Car	Time
4	National	:30
10	National	2:00
7	Benz, R. F	1:00
17	Pope-Hartford, L. F., R. R	6:30
22	Pope-Hartford	:30
29	Marquette-Buick, R. R	1:30
3	Marquette-Buick	:30
16	Benz	1:00
11	Simplex, L. R	3:00
25	Marmon, L. R	3:30
22	Pope-Hartford	1:45
7	Benz, R. F., R. R., L. F	3:00
9	Amplex, L. F., L. R	5:00
22	Pope-Hartford, R. F	5:00
26	Houpt-R., L. R., R. F	7:30
29	Marquette-Buick, R. F., R. R.	3:00
16	Benz, L. F., R. F	4:30
9	Amplex, R. R., R. F	4:30
2	Lozier, L. R., R. F., R. R	4:30
11	Simplex, L. F., R. F	4:00
10	National, R. R	2:00
17	Pope-Hartford, L. R., R. F	2:30
28	Apperson	3:50
6	Simplex, L. F	3:00
2	Lozier, R. R	1:45
15	Stoddard-Dayton, R. F	4:30
31	National, R. R	1:45
16	Benz, L. F., R. R	5:30
18	Also, L. F	:40
7	Benz, L. R	3:00



MITCHELL IN SIMPLEX PASSING THE GRAND STAND. THE OTHER SIMPLEX WAS WRECKED ON THE MASSAPEQUA LODGE TURN

round he only had a margin of 43 seconds. Another bit of trouble and he was done for, but the big fellow did not let that worry him. He sat in his car coolly while the tire was being changed, and then opened wide for the final sprint. He did not let Dawson worry him any, but swung around in 11:22, slower than the time made for the last lap by Dawson by 18 seconds, but still enough to win by an eyelash, so to speak. Aitken, who was third, did not run to the limit, either, being satisfied with a last round in 11:26. Aitken confessed that near the end of the race the crowding on the back stretch affected his nerve,

(Continued on page 10)

THE VANDERBILT COURSE

That Grant, in the Alco, should be able to average 65.18 miles an hour for 278 miles over a course in the condition the Vanderbilt was last Saturday is something over which one may marvel. Credit for the performance does not belong to the course, but to the car and driver. Had the going been as smooth as that at Savannah 2 years ago, or at Elgin this year, the winning average would have been close to 70 miles an hour. That the Alco had the speed was shown by its thirteenth lap, which was made at the rate of 80.25 miles an hour. The course in general was rough. The parkway portion was not rutted, of course, but the cracks in the cement, running transversely, made the going decidedly bumpy in places. There were big spots that had chipped and had been filled in. As for the country road portion of the course, a little money spent on it would have vastly improved it. In many places on the back stretch the ruts were deep and bad, although there were one or two stretches where speed could be made. The turns, too, were bad, especially the one at Massapequa lodge, where the cars left the parkway and swung onto the country road. It was soft there, and a telegraph post was located just at the wrong place. On this turn there were three cars wrecked. It also is the same turn on which George Robertson came to grief in practice. Here, too, the crowds gathered and greatly hampered the drivers, who were worried at this point.

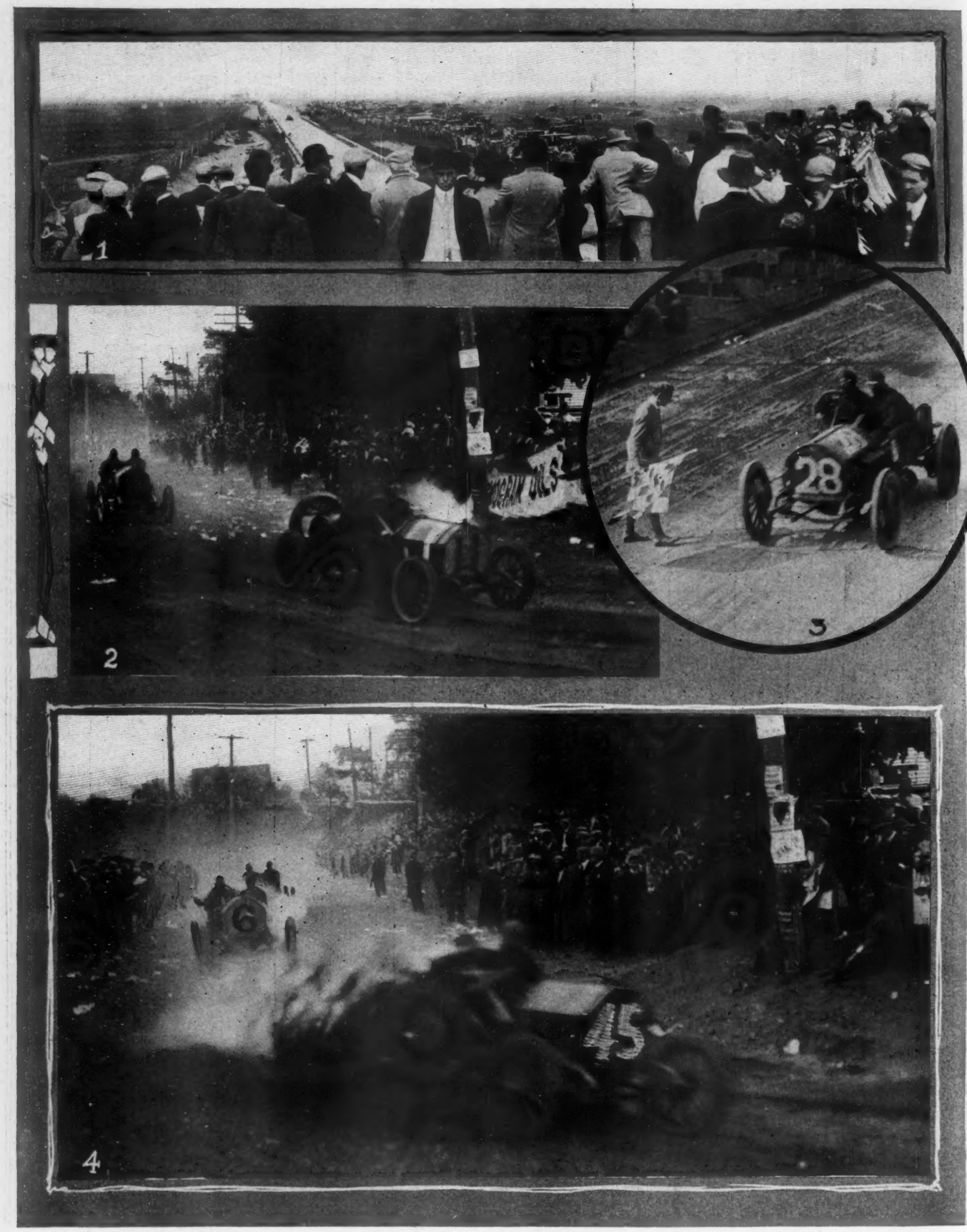
JOHN AITKEN IN NATIONAL ON BACKSTRETCH

STATISTICAL STORY OF THE SIXTH VANDERBILT CUP RACE WON BY GRANT IN ALCO

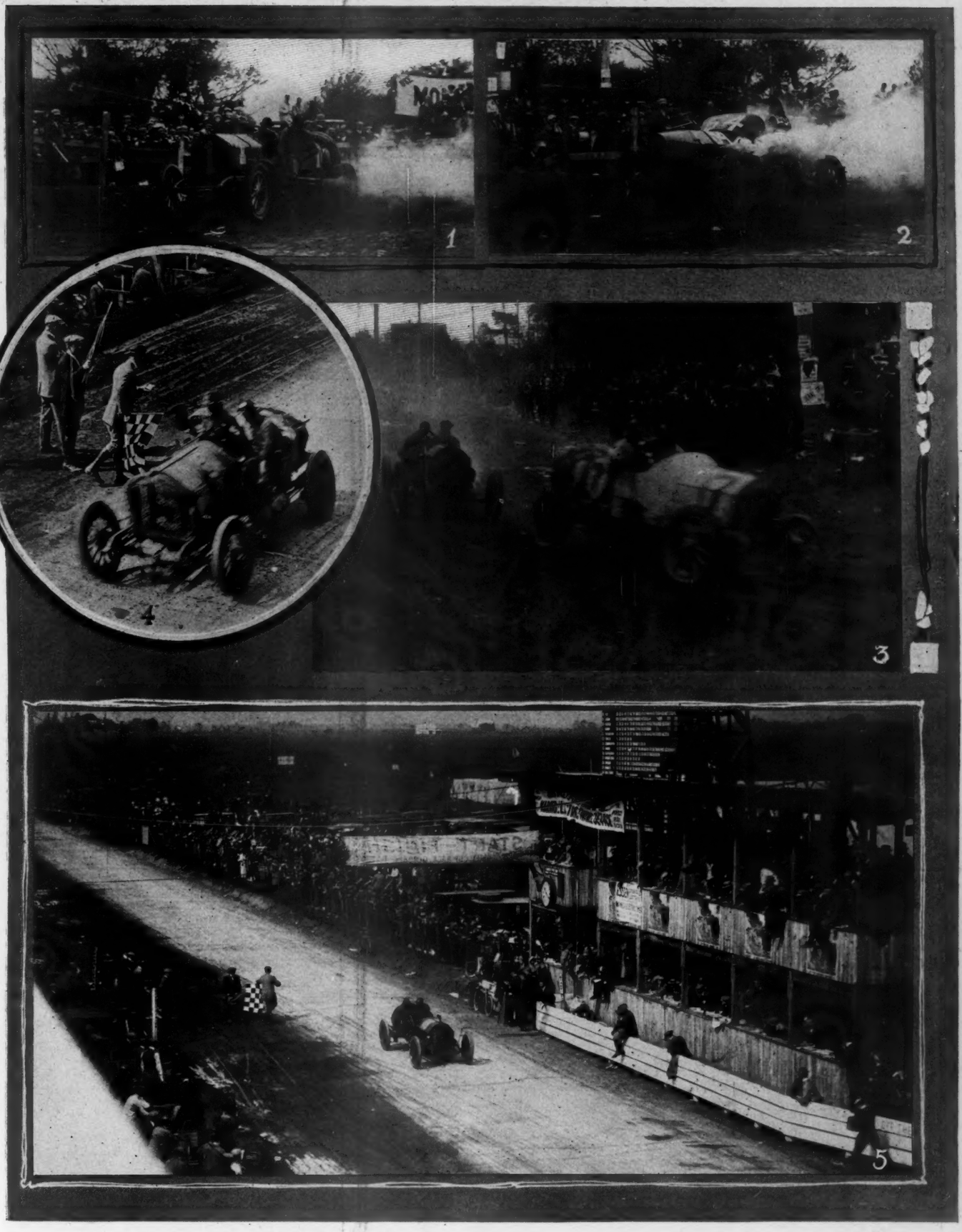
No.	Car and driver	Bore	Stroke	Cyl. cap		1	2	3	4	5	6
18	Alco six Grant	4¾	5½	584.8	Total time	11:33	22:49	34:02	45:18	56:32	67:44
					Lap time		11:16	11:13	11:16	11:14	11:12
					Lap average	65.66	67.31	67.61	67.31	67.51	67.71
					Lap position	13	10	10	11	8	7
25	Marmon, Dawson	4½	5	318.1	Total time	11:12	21:58	32:48	43:42	54:52	65:43
					Lap time		10:46	10:50	10:54	11:10	10:51
					Lap average	67.71	70.44	70.00	69.58	67.92	69.90
					Lap position	6	4	8	3	3	3
10	National, Aitken	5	5 11-16	447	Total time	11:31	22:35	33:39	44:52	56:04	69:54
					Lap time		11:04	11:04	11:13	11:12	13:50
					Lap average	65.84	68.53	68.53	67.61	67.71	54.82
					Lap position	12	9	5	7	7	12
31	National, Disbrow	5	5 11-16	447	Total time	11:51	23:03	34:13	45:35	56:48	68:04
					Lap time		11:12	11:10	11:12	11:13	11:16
					Lap average	64.00	67.71	67.92	67.71	67.61	67.31
					Lap position	18	11	11	12	9	8
2	Lozier, Mulford	5⅜	6	544.6	Total time	11:14	22:08	33:04	44:04	55:05	66:07
					Lap time		10:54	10:56	11:00	11:01	11:02
					Lap average	67.51	69.58	69.37	68.94	68.84	68.74
					Lap position	7	5	4	4	4	4
17	Pope-Hartford, Fleming	4¾	5½	389.9	Total time	11:35	22:32	33:39	44:46	55:51	66:55
					Lap time		10:57	11:07	11:06	11:05	11:04
					Lap average	65.47	69.26	68.22	68.33	68.43	68.53
					Lap position	15	7	6	6	6	6
11	Simplex, Mitchell	5¾	5¾	597.2	Total time	11:46	23:19	34:41	46:07	57:24	68:41
					Lap time		11:33	11:22	11:26	11:31	11:17
					Lap average	64.45	65.66	66.72	66.33	65.85	67.21
					Lap position	16	13	15	14	11	9
7	Benz, Hearne	5	6	471.2	Total time	11:51	23:05	34:22	45:44	57:06	68:44
					Lap time		11:14	11:17	11:22	11:22	11:38
					Lap average	64.00	67.51	67.21	66.72	66.72	65.19
					Lap position	20	12	12	13	10	10
15	Stoddard-Dayton, Harding	5	5½	431.9	Total time	11:54	23:26	34:51	46:19	57:46	69:08
					Lap time		11:34	11:25	11:28	11:27	11:22
					Lap average	63.73	65.57	66.43	66.14	66.24	66.72
					Lap position	21	15	14	15	12	11
22	Pope-Hartford, Dingley	4¾	5½	389.9	Total time	11:27	22:28	33:26	44:26	55:32	66:34
					Lap time		11:01	10:58	11:00	11:06	11:02
					Lap average	66.24	68.84	69.15	68.94	68.33	68.74
					Lap position	9	6	9	5	5	5
20	Oldsmobile, Stillman	5	6	471.2	Total time	12:37	24:46	36:51	49:11	61:08	73:13
					Lap time		12:11	12:05	12:20	11:57	12:05
					Lap average	60.11	62.25	62.76	61.49	63.46	62.76
					Lap position	24	20	18	20	17	16
16	Benz, Bruce-Brown	5	6	471.2	Total time	11:29	29:43	44:53	51:59	63:08	74:12
					Lap time		18:14	15:10		11:09	11:04
					Lap average	66.04	41.58	50:00		68.02	68.53
					Lap position	11	24	23	22	19	17
1	National, Livingstone	5	5 11-16	447	Total time	11:34	37:01	50:39	77:10	83:20	99:23
					Lap time		15:27	13:38	26:31		16:03
					Lap average	65.57	49.08	55.62	28.60		47.25
					Lap position	14	25	24	26	23	23
9	Amplex, Jones	5	5 11-16	447	Total time	12:13	23:51	35:25	47:07	58:48	70:32
					Lap time		11:38	11:34	11:42	11:41	11:44
					Lap average	62.08	65.19	65.57	64.82	64.91	64.64
					Lap position	22	18	16	17	14	13
6	Simplex, Beardsley	5¾	5¾	597.2	Total time	14:20	25:37	36:53	48:22	58:49	71:09
					Lap time		11:17	11:16	11:29	10:27	12:20
					Lap average	52.91	67.21	67.31	66.04	72.57	61.49
					Lap position	27	21	19	19	15	14
28	Apperson, Hanshue	5¾	5¾	597.2	Total time	16:32	57:02	74:40	86:33	98:38	110:37
					Lap time		40:30	17:38	11:53	12:05	11:59
					Lap average	45.76	18.72	43.00	63.82	62.76	63.29
					Lap position	28	27	26	27	25	24
4	Mercedes, Wishart	5½	6	570.2	Total time	11:22	27:58	39:09	55:10	66:08	77:07
					Lap time		16:36	11:11	14:01	10:58	10:59
					Lap average	66.72	45.68	67.81	54.10	69.15	69.05
					Lap position	8	22	20	23	20	18
26	Houpt-Rockwell, Limberg	5½	6	570.2	Total time	12:15	24:04	35:43	47:29	59:07	71:34
					Lap time		11:49	11:39	11:46	11:38	12:27
					Lap average	61.91	64.18	65.10	64.45	65.19	60.92
					Lap position	23	19	17	18	16	15
29	Marquette-Buick, L. Chevrolet.	6	5¼	593.7	Total time	10:46	21:09	31:13	41:46	52:07	62:40
					Lap time		10:33	10:04	10:13	10:21	10:33
					Lap average	70.44	71.89	75.34	74.23	73.27	71.89
					Lap position	1	1	1	1	1	1
21	Marmon, Harroun	4½	6½	413.5	Total time	35:27	46:21	57:00	67:38	78:20	89:05
					Lap time		10:54	10:39	10:38	10:42	10:45
					Lap average	37.08	69.58	71.21	71.32	70.88	70.55
					Lap position	30	26	25	24	22	20
19	Jackson, Schiefler	4⅞	4¾	354.6	Total time	102:09	115:22	128:03	140:23	152:37	164:53
					Lap time		13:13	12:41	12:20	12:14	12:16
					Lap average	7.42	57:38	59.80	61.49	61.99	61.83
					Lap position	31	28	27	28	26	26
24	Stoddard-Dayton, De Hymel	5	5½	431.9	Total time	12:45	23:37	34:26	45:16	66:15	78:04
					Lap time		10:52	10:49	10:50	11:39	11:09
					Lap average	59.48	69.79	70.11	70.00	65.10	68.02
					Lap position	25	17	13	10	21	19
27	Marquette-Buick, Burman	6	5¼	593.7	Total time	11:03	21:39	32:09	42:37	53:00	63:40
					Lap time		10:36	10:30	10:18	10:23	10:40
					Lap average	68.63	71.55	72.23	73.63	73.04	71.10
					Lap position	4	2	2	2	2	2
14	Corbin six, Matson	4½	4¼	405.6	Total time	11:48	23:36	48:30	74:32	86:52	98:57
					Lap time		11:48	25:54	26:02	12:20	12:05
					Lap average	64.27	64.27	29.28	29.13	61.49	62.76
					Lap position	17	16	22	25	25	22
3	Marquette-Buick, A. Chevrolet.	6	5¼	593.7	Total time	11:03	29:35	40:24	50:24	61:34	115:59
					Lap time		18:32	10:49	10:00	11:10	54:25
					Lap average	68.63	40.92	70.11	74.60	67.92	13.93
					Lap position	3	23	21	21	18	25
23	American, Wallace	5¾	5½	389.9	Total time	11:28	22:34	33:42	45:08	84:02	98:04
					Lap time		11:06	11:08	11:26	38:54	14:02
					Lap average	68.63	68.33	68.12	66.33	19.49	54.04
					Lap position	10	8	7	9	24	21
8	Benz, Heim	5	6	471.2	Total time	11:51	23:25	34:51	46:25	58:02	
					Lap time		11:34	11:26	11:34	11:37	
					Lap average	64.00	65.57	66.33	65.66	65.29	
					Lap position	19	14	15	16	13	
32	Knox six, Belcher	5	4¾	559.5	Total time	11:00	21:25	32:33			
					Lap time		10:45	10:48	Valve trouble		
					Lap average	68.94	70.55	70.22			
					Lap position	2	3	3			
30	Royal Tourist, Jardine	5½	6	570.2	Total time	23:43	Broken camshaft				
					Lap average	32:1					
					Lap Position	29					
12	Columbia, Stone	4⅞	5½	410.6	Car ran off track first lap						

SHOWING TOTAL TIME, LAP TIME, LAP AVERAGE AND LAP POSITION OF EACH CAR

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	M.P.H.
79:02	90:20	101:50	115:16	126:34	139:58	149:25	160:50	172:09	183:27	196:33	207:57	220:51	232:06	244:36	255:58	65.18
11:18	11:18	11:30	13:26	11:18	13:24	9:27	11:25	11:19	11:18	13:06	11:24	12:54	11:15	12:30	11:22	
67.11	67.11	65.95	56.45	67.11	56.59	80.25	66.43	67.01	67.11	57.89	66.53	58.79	67.41	60.67	66.72	
7	7	3	5	5	6	4	4	2	2	2	1	1	1	1	1	
76:36	87:26	98:15	109:25	120:17	135:23	146:42	158:30	169:45	181:02	192:32	211:54	223:11	234:19	245:19	256:23.51	65.07
10:53	10:50	10:49	11:10	10:52	15:06	11:19	11:58	11:15	11:17	11:30	11:22	11:17	11:08	11:00	11:04.51	
69.6d	70.00	70.11	67.92	69.79	50.22	67.01	63.38	67.41	67.21	65.95	66.72	67.21	68.12	68.94	68.53	
3	3	2	1	1	1	1	2	1	1	1	3	3	2	2	2	
83:27	94:52	106:17	117:43	129:02	142:32	152:03	163:38	175:03	186:26	198:08	211:21	222:56	234:27	246:03	257:29.74	64.7
13:33	11:25	11:25	11:26	11:19	13:30	9:31	11:35	11:25	11:23	11:42	13:13	11:35	11:31	11:36	11:26.74	
55.92	66.43	66.43	66.33	67.01	56.17	79.69	65.47	66.43	66.62	64.82	57.38	65.47	65.85	65.38	66.33	
14	12	12	9	9	7	6	5	3	3	3	2	2	3	3	3	
79:16	91:08	102:18	113:43	125:10	136:32	149:17	160:41	176:28	191:34	203:03	214:43	227:51	241:04	252:27	264:08.24	63.1
11:12	11:52	11:10	11:25	11:27	11:22	12:45	11:24	15:47	15:06	11:29	11:40	13:08	13:13	11:23	11:41.24	
67.71	63.91	67.92	66.43	66.24	66.72	59.48	61.16	48.05	50.22	66.04	65.01	57.74	57.38	66.62	64.91	
8	8	5	2	2	3	3	3	6	6	6	5	4	4	4	4	
77:05	87:59	103:25	114:23	125:24	139:23	157:36	168:42	179:46	191:09	206:38	218:02	231:27	242:34	253:38	264:33.59	63.6
10:58	10:54	15:26	10:58	11:01	13:59	18:13	11:06	11:04	11:23	15:29	11:24	13:25	11:07	11:04	10:55.59	
69.15	69.58	49.14	69.15	68.84	54.23	41.63	68.33	68.53	66.62	48.98	66.53	56.52	68.22	68.53	69.47	
4	4	8	4	4	5	9	9	9	7	8	7	6	6	5	5	
78:09	89:07	102:12	120:12	131:25	142:50	154:10	165:35	176:52	188:11	201:43	216:42	229:32	241:09	255:04	266:37.47	62.5
11:14	10:58	13:05	18:00	11:13	11:25	11:20	11:25	11:17	11:19	13:32	14:59	11:50	11:37	13:55	11:33.47	
67.51	69.15	57.96	42.13	67.61	66.43	66.91	66.43	67.21	67.01	56.03	50.60	64.09	65.29	54.49	65.66	
6	6	4	10	10	8	7	7	7	5	5	6	5	5	6	6	
79:57	91:15	106:11	117:32	128:56	144:20	155:40	167:13	178:41	193:02	208:58	220:22	234:09	245:53	260:12	272:01.69	61.3
11:16	11:18	15:56	11:21	11:24	15:24	11:20	11:33	11:28	14:21	15:56	11:24	13:47	11:44	14:19	11:49.69	
67.31	67.11	47.59	66.82	66.53	49.24	66.91	65.66	66.14	52.85	47.59	66.53	52.60	64.64	52.97	64.18	
9	9	11	8	8	9	8	8	8	8	10	10	9	8	7	7	
87:15	99:13	110:54	122:33	134:21	146:09	160:52	172:55	184:37	196:39	208:30	220:08	231:55	243:37	256:41	272:25.27	61.2
16:31	11:58	11:43	11:39	11:49	11:48	14:41	12:03	11:42	12:02	11:51	11:38	11:47	11:42	13:04	15:44.27	
45.91	63.38	64.73	65.10	64.18	64.27	51.65	62.94	64.82	63.02	64.00	65.19	64.36	64.82	58.04	48.20	
16	16	17	13	14	12	12	11	11	10	9	8	8	7	13	8	
83:02	94:22	105:41	125:06	136:43	147:56	159:25	170:53	182:15	193:30	204:41	220:09	231:46	247:13	262:00	273:34	60.09
13:54	11:20	11:19	19:25	11:37	11:13	12:29	11:28	11:22	11:15	11:11	14:28	11:35	15:27	14:47	11:34	
54.56	66.91	67.01	39.05	65.29	67.61	60.75	66.14	66.72	67.41	67.81	51.27	65.47	49.08	51.30	65.57	
12	11	10	16	16	15	11	10	10	9	7	9	7	9	8	9	
77:40	88:41	102:32	117:20	128:35	146:10	162:24	176:04	187:27	202:17	215:44	227:03	238:32	252:51	265:17	277:73	59.9
11:06	11:01	12:51	14:88	11:15	17:35	16:14	13:40	11:23	14:50	13:27	11:19	11:29	14:19	12:26	12:56	
68.33	68.84	59.02	49.03	67.41	43.13	46.71	55.49	66.62	51.12	56.38	67.01	66.04	52.97	61.00	58.64	
5	5	6	7	7	13	13	13	12	12	14	12	10	10	9	10	
85:04	96:57	108:45	120:30	132:10	148:47	163:25	179:01	191:12	203:13	215:23	227:20	249:36	253:32	265:36		59.9
11:51	11:53	11:48	11:45	11:40	16:37	14:38	15:36	12:11	12:01	12:10	11:57	22:16		12:04		
64.00	63.82	64.27	65.54	65.01	46.64	51.82	48.61	62.25	63.11	62.33	63.46	34.05		62.85		
15	14	13	11	11	16	14	14	14	13	13	13	12	12	10		
89:00	100:27	111:40	124:21	136:09	147:28	159:08	173:21	189:20	200:59	212:19	223:30	234:15	253:58	267:39		59.4
14:48	11:27	11:13	12:41	11:48	11:19	11:40	14:13	15:59	11:39	12:20	11:11	10:45	19:43	13:41		
51.24	66.24	67.61	59.80	64.27	67.01	65.01	53.34	47.44	65.10	61.41	67.81	70.55	38.46	55.42		
19	18	18	15	15	14	10	12	13	11	12	11	11	11	11		
10:24	121:45	132:55	144:08	155:34	166:54	178:15	189:30	200:49	212:15	223:57	238:49	250:10	261:30	273:00		58.3
11:01	11:21	11:10	11:13	11:26	11:20	11:21	11:15	11:19	11:26	11:42	13:52	11:21	11:20	11:30		
68.84	66.82	67.92	67.61	66.33	66.91	66.82	67.41	67.01	66.33	64.82	54.69	66.82	66.91	65.95		
21	20	19	17	17	18	16	15	15	14	15	14	13	13			
82:16	122:50	134:26	146:04	158:06	175:41	187:17	204:32	216:15	228:14	239:58	251:50	263:30	Running			
11:44	40:34	11:36	11:38	12:02	17:35	11:36	17:15	11:43	11:59	11:44	11:52	11:40				
64.64	18.67	65.38	65.19	63.02	43.13	65.38	43.96	64.73	63.29	64.64	63.91	65.01				
10	21	20	18	18	19	17	16	16	15	16	15	14				
82:25	93:41	105:00	116:19	127:33	138:54	150:19	164:41	176:04	187:27	198:55	213:53					
11:16	11:16	11:19	11:19	11:04	11:21	11:25	14:22	11:23	11:23	11:28	14:58					
67.31	67.31	67.01	67.01	68.53	66.82	66.43	52.81	66.62	66.62	66.14	50.66					
11	10	9	6	6	4	5	6	5	4	4	4					
122:52	142:30	155:00	166:53	178:41	190:32	208:05	220:32	232:58	245:21	257:29						
12:15	19:38	11:30	11:53	10:48	11:51	17:33	12:27	12:26	12:23	12:08						
61.91	38.62	65.95	63.82	70.22	64.00	43.21	60.92	61.00	61.24	62.51						
23	23	22	20	20	20	19	19	19	17	17	17					
88:09	99:11	110:13	153:45	165:23	193:00	204:19	215:22	226:30	237:36	259:00						
11:02	11:02	11:02	42:32	11:38	27:37	11:19	11:03	11:08	11:06	21:24						
68.74	68.74	68.74	17.83	65.19	27.46	67.01	68.63	68.12	68.33	35.43						
17	15	14	19	19	21	18	17	17	16	18	16					
83:18	95:01	110:43	122:33	134:17	156:57	170:24	219:59	231:36	250:13	265:33						
11:44	11:43	15:42	11:50	11:44	12:40	13:27	49:25	11:37	18:47	15:20						
64.64	64.73		64.09	64:64	59.87	56.38	15.34	65.29	40.37	49.46						
13	13	16	12	13	17	15	18	18	18	19						
73:11	83:45	103:04	114:11	125:18	136:11	147:14	158:13	175:23	Broken steering knuckle							
10:31	10:34	19:59	11:07	11:07	10:53	11:03	10:59	17:10								
72.11	71.77	37.95	68.22	68.22	69.68	68.63	69.03	44.17								
1	1	7	3	3	2	2	1	4								
99:58	116:47	164:23	175:40	186:41	197:43	209:02	Broken crankshaft									
10:53	16:49	17:36	11:17	11:01	11:02	11:19										
69.68	45.09	43.09	67.21	68.84	68.74	67.01										
20	19	23	21	21	22	20										
177:12	187:27	201:40	213:46	225:55	242:15	254:53	267:11									
12:19	10:15	14:13	12:06	12:09	16:20	12:38	12:18									
61.58	73.99	53.34	62.68	62.42		60.03	60.03									
25	24	24	22	22	23	21	20									
88:52	99:42	110:37	123:04	134:05	Broken steering knuckle											
10:48	10:50	10:55	12:27	11:01												
70.22	70.00	69.47	60.92	68.84												
18	17	15	14	12												
75:51	86:52	97:01														
12:11	11:01	10:09														
62.25	68.84	74.72														
2	2	1														
119:42	137:37	149:45														
10:45	17:55	12:08														
70.55	42.32	62.51														
22	22	21														
140:05	Broken chain															
24:06																
24																
Cracked cylinder																
Car caught afire																



1—On Bridge Looking Towards Grand Stand from the East
2—Johnny Aitken in National Chasing No. 11 Simplex
3—Hanshue in the Apperson on His Final Circuit
4—Heinemann in Marmon Pursued by Two Vanderbilt Cars



1—Johnny Aitken in National After One of His Fast Laps.
2—Knipper in Lancia in Massapequa in Early Stage of Race
3—Dawson in Marmon in Chase of Fleming in Pope-Hartford
4—Harding in Stoddard-Dayton Given the Flag by the Starter
5—Grant in Alco Winning His Second Vanderbilt Cup Race

VANDERBILT RACE RESULTS

(Continued from page 5)

and that he did not extend himself, even though the Vanderbilt cup itself was the prize.

Probably the most gratifying feature of the race from the standpoint of the manufacturers was that the first five to finish were stock cars from stem to stern, despite the fact that the Vanderbilt is a free-for-all, with a piston displacement limit of 600 inches. The specially built cars got little of the glory, and the result is taken as a vindication for the supporters of the stock car theory as it applies to contest work. Of the thirty-one cars that were entered in the Vanderbilt, thirty were sent away by Starter Wagner, the start being at 5:55, just as dawn was breaking. At this time there was a slight drizzle, which, however, did not last long, the streak of weather giving way to a beautiful Indian summer day that was enjoyed by all. No. 5 Oldsmobile did not get to the tape, a seized piston which developed on the way from the camp causing the car to be withdrawn at the last minute. The Vanderbilt had the right of way and the big cars lined up at the tape, while the Wheatley and Massapequa cars were parked at the east end of the pit for a start later on. The Wheatleyites left an hour after the last Vanderbilt cup car, and the Massapequans half an hour after the Wheatley, which made the sport far more enjoyable. Still, it almost caused an accident, for while the Wheatley was getting under way a Vanderbilt car, Hearne's Benz, nearly went into the crowd at this point. A Wheatley car was swinging into the course, and the cloud of smoke it emitted caused the Benz to swing to the extreme left side of the course, its wheels leaving the cement and sending up a big cloud of dust. It looked for a minute as if the car had gone into the crowd, but Hearne kept his nerve and pulled out beautifully and kept on his way, undisturbed by the incident. In the Wheatley all the cars started save the Correja, which was disqualified by the technical committee on the grounds that it did not come up to full stock specifications as required by the A. A. A. technical committee.

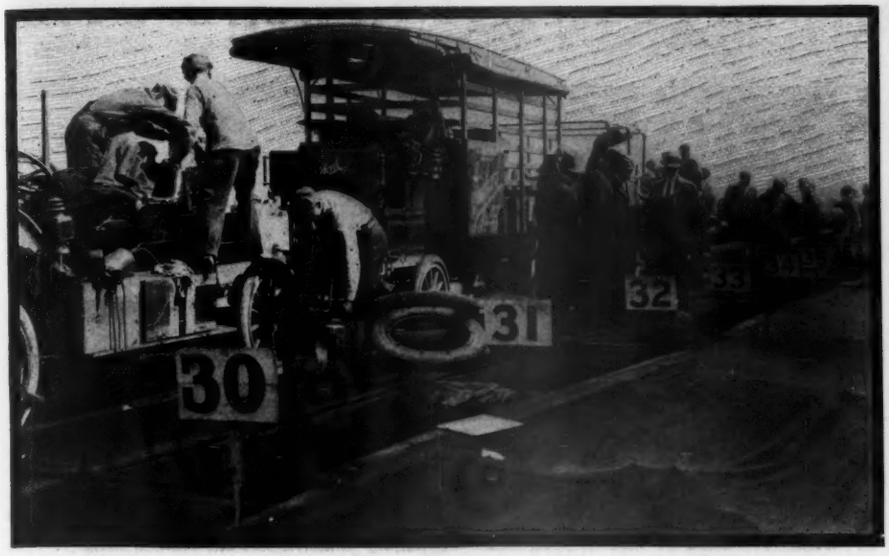
REMOVING THE TIRES AND EQUIPMENT FROM THE PITS AFTER THE RACE

Looking at the course before the race started, it looked far from fast. The parkway part was rough and occupants of cars could distinctly feel the bumps occasioned by the waves and miniature ruts. The country road section really was better, although over near Hicksville there were some bad spots, while the turns were not any too good. That such wonderful speed was made is not due to the course, but to the cars themselves. Had the course been right and guarded the winner undoubtedly could have averaged better than 70 miles an hour, it is declared by the experts.

As had been anticipated, the Marquette-Buicks started out to beat it from the first lap on. Louis Chevrolet killed his motor at the start and this delayed him so that he and the Royal Tourist left the mark together. Still Chevrolet jumped into the lead, even with this 15-second loss, and he turned the first lap in 10:46. Increasing his speed, he went out to make it a runaway, and it seemed all over save the shouting, provided the car could stand up. At the end of eight laps Chevrolet had averaged 75 miles an hour, and there was a possibility of his getting that long standing record of Nazzaro's, made in the Florio cup race a couple of years back. There seemed to be no limit to Chevrolet's speed, and just to show what he could do he turned several fast laps on which he ran close to 80 miles an hour. It proved the beginning of the end for him, for immediately following magneto and chain trouble developed and cost Chevrolet his lead. Still, he had not lost the cup, for he was nearly 4 minutes to the good at the end of the eighth. Fighting, he worked back to first again at the end of the fourteenth, dropped to fourth on the next round, and then came the accident which killed his mechanic and stopped the car.

With Chevrolet out in front and beating it this way, the others were going at a clip that ordinarily would have been considered wonderful. Burman was runner-up for the first half, while clinging desperately to the leaders was Dawson, in the Marmon, who refused to be scared by the record-breaking pace of the Marquette-Buick. Mulford, in the Lozier, also was far from beaten, while Aitken was well in

AT THE WESTBURY TURN—BEFORE THE END OF THE RACE THE CROWDS WERE CONSTANTLY ON THE COURSE—THE WHITE WAVY LINE SHOWS WHERE THE RACING CARS HAD TO WEAVE THEIR WAY THROUGH THE CROWDS



LOADING ALL THE NECESSARIES AT THE PITS IMMEDIATELY THE RACE WAS OVER

the vanguard. On the other hand, Grant was following the same tactics that won the cup for him a year ago. He was thirteenth at the end of the first lap, was tenth in the second and third, then eleventh, then eighth in the sixth, where he went to seventh, staying there for three rounds, when there came several kaleidoscopic changes that advanced him to third, with Dawson second. Then he slumped to fifth, and then to sixth. In the thirteenth, however, he moved to fourth, and in the fifteenth he became second to Dawson, finally getting the lead on the Marmon youngster in the seventeenth round and holding it from there to the end of the race, although he was in peril at the end of the twenty-first round.

Mulford, in the Lozier, looked a dangerous foe in the early stages of the race. The car that won the Elgin National trophy in July, and which was looked upon as the stock car champion, ran consistently for twelve laps, then Mulford began to have tire trouble, from which he was immune at Elgin. Added to this he lost 8 minutes on one stop, when he was forced to change a valve. He never regained his lost ground, but at the end he had worked up to fifth position, in which he finished.

The speed of the cars was well illustrated by the lap times, two of the contestants beating last year's 9:56. Grant, in the Alco, showed what he could do in the thirteenth round, when he let out the big black car and whizzed around in 9:27, equal to 80.25 miles an hour. This was the fastest lap of the race. Aitken, in the National, wasn't so slow, either, his best lap being the thirteenth, when he did 9:37, or 79.69 miles per hour. Dawson did 10:46 in his second round, at which time Mulford showed 10:54. Schiefler, in the Jackson, after his early troubles, turned 10:15 in the eighth, while Arthur Chevrolet made his fourth round in 10:00. Burman turned 10:09 in the eighth.

Naturally, with such a tremendous field in the Vanderbilt, the smaller events suffered in comparison, and these contests attracted little attention, although the smaller cars were putting up meritorious performances which would have stirred the crowd to enthusiasm had the races been segregated as they were at Elgin. In the Wheatley, in which the Falcars ran one, two, Heinemann, in the Marmon, seemed a sure winner. He was nearly 4 minutes ahead of Pearce, in the Falcar, when ignition trouble developed, and while the Marmon kept going it was dull of speed and never was a factor in the battle from that point on. For ten of the fifteen laps Pearce led his teammate, Gelnaw, but in the eleventh the latter gained the front and never left the result in doubt. Only the two Falcars completed the full race. The Corbin and the Fry Mercer went out in the second round.

The Massapequa brought out two Coles, two Abbotts and the Lancia, and the race seemed made for the foreign car. Knipper went his first five laps faster than the Falcars in the Wheatley, but in the seventh he ran off the bank at Massapequa lodge and was down and out. This left it all clear sailing for Bill Endicott, in the Cole, who jogged along to victory, pursued by Roberts in the Abbott-Detroit, who snatched the place from Edmunds, in the other Cole. The second Abbott, which was driven by Padula, hit a telegraph pole in the second lap at Massapequa lodge and stayed there.

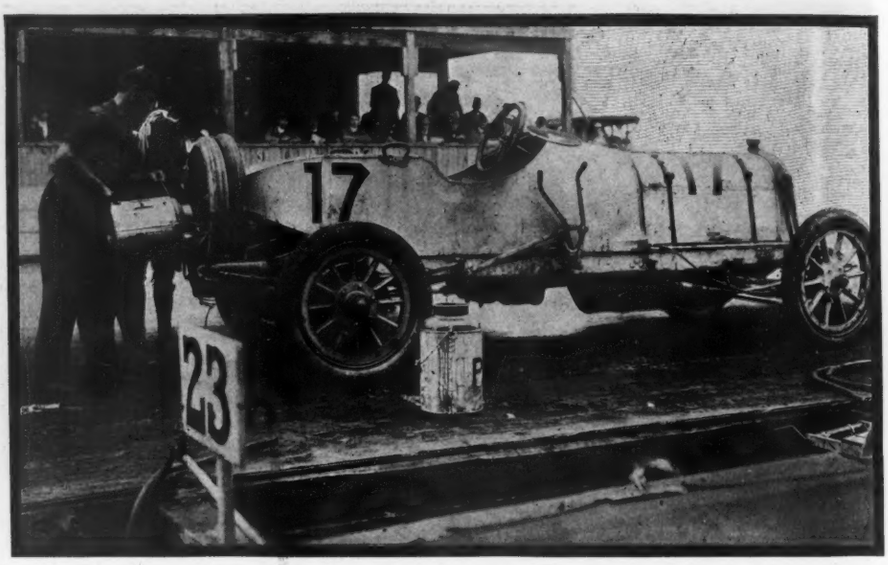
Following the race, some of the officials drove around the course and were dismayed at what they saw. There were wrecked cars galore. At Massapequa lodge alone there were the Beardsley Simplex, the Lancia and the Padula Abbott, while further on were Burman's Marquette-Buick, Jardine's Royal, Louis Chevrolet's car and Stone's Columbia. Apparently the race itself had not damaged the course much. If anything the back stretch was in better shape than it was on Friday night. The turns, though, had been chopped up.

At the request of both the Alco and the National the A. A. A. technical committee last night made an inspection of both Grant's and Aitken's cars to pass upon their stock qualifications. The committee examined the cars carefully and then certified that both of them were stock in every particular. The Alco is the same car that Grant drove in last year's Vanderbilt. While there were other stock cars in yesterday's race the makers of them did not ask for an official examination.

ALL ALONG THE BACKSTRETCH THERE WERE NOT ANY FENCES TO KEEP THE CROWDS BACK AND THEY SWARMED OVER THE COURSE SO THAT DRIVERS COULD NOT SEE MORE THAN 100 YARDS AHEAD OF THEM

MECHANICAL TROUBLES IN VANDERBILT RACE

THE story of the causes of the wrecks that so often strew the roadside after a big road race ordeal never is a pleasant one or is a narration of those troubles that befell the different contestants during their terrific warfare with rough roads and Father Time before they finally crossed the tape and received the checkered finishing flag. The races have a particularly heavy wreckage toll, much of which was caused indirectly by the poor policing of the course, which policing, by allowing the crowds to crowd on the road in front of the racing cars so that four of the cars struck people standing on the roadway, irritated and disturbed the drivers so that their efforts had to be too much centered on avoiding the crowds on the road instead of nursing the car by picking out the most favorable parts of the highway and giving that quota of attention to the care of the motor which it deserves in a long-distance road race.



FLEMING IN POPE-HARTFORD TAKING ON GASOLINE AND TIRES AT THE PITS. THE TWO POPES HAD MORE THAN THE AVERAGE OF TIRE TROUBLES

Thirty-one cars were entered in the Vanderbilt race. One dropped out just as it reached the starting line, twelve fell by the wayside during the race, ten finished and eight were running in good condition when the referee called the event off and did not give the majority of these eight an opportunity to finish. Eighteen cars to be running out of thirty at the end of a 278-mile race over a cruel road is a good record, and of these eighteen, fifteen were American machines.

The study of the wreckage in the wake of a road race is only valuable insofar as to see in an analysis of the wrecks the causes that led to them. The study of wrecks for curiosity's sake is too morbid an occupation for anyone deeply interested in the motor industry. Beginning at the darkest phase of the question, namely, the thirteen cars that fell out, eight made their exit before the race was half over; in fact, by the time it was one-third over. All of these going out before the end of the seventh lap lost their chances through apparently trying to make too much speed, more speed than their machines, with the care they were giving them, would stand. This speed mania was an internal condition with the drivers. They knew of the big field, they knew of the fast cars, cars which had shown fast laps in preliminary work, and they felt they were out to win their spurs, and if they were to win them they must start from the first lap, which several of them did. The results show that some of the cars were injured more in the first two laps than in the remainder of the race.

Before further analyzing the troubles, a list of them will prove of interest:

Lap 1. Columbia through fence.

Lap 2. Royal broke a camshaft.

Lap 4. The Knox broke a valve.

Lap 6. Heim's Benz broke the gasoline line and the leaking gasoline was set on fire in the mud apron and all insulation was burned off the ignition cables.

Lap 7. The American cracked a pair of cylinders.

Lap 8. Arthur Chevrolet broke his driving chains and damaged the differential.

Lap 10. Burman's Buick fell out, exact cause not known.

Lap 12. A steering knuckle broke on De Hymel's Stoddard-Dayton.

EDDIE HEARNE IN NO. 7, BENZ, AND BRUCE BROWN IN NO. 16, BENZ, BOTH OF WHOM WENT THROUGH THE SPEED BATTLES, BUT LOST MUCH TIME DUE TO TIRE CHANGES DURING THE RACE

MOSTLY DUE TO ROUGH CIRCUIT AND CROWD

ON THE NEXT TO LAST LAP GRANT STOPPED TO CHANGE A TIRE, AND DESPITE FACT HE HAD BUT A FEW SECONDS OVER DAWSON, HE DID NOT LEAVE SEAT

Lap 14. Matson withdrew his Corbin, due to trouble with water gaskets between cylinder jackets and return water pipes.

Lap 16. Louis Chevrolet's Buick was wrecked, due to a broken steering knuckle.

Lap 19. Beardsley's Simplex was wrecked, due to a broken steering knuckle.

A few brief conclusions can be drawn from this obituary list: There were three cases of broken steering knuckles and all of these took place in the second half of the race, a fact tending to show that it was the terrific vibration caused by the rough condition of the parkway that brought this steering knuckle trouble about. Had these three knuckles broken in the first of the contest, the lessons drawn would have been different.

The cars that fell out in the first third of the race, fell out for varying reasons: The broken valve was undoubtedly due to the fast pace which the Knox was setting, Belcher having averaged 70 miles an hour from the start until his dropping out in the fourth circuit. High speed may have had something to do with the cracking of the American's cylinders in the seventh, as this car was averaging close to 68 miles an hour in the opening circuits. It undoubtedly was the high speed Heim was making with the Benz that broke the gasoline line in the sixth lap, his average from the start to the period of his elimination being 66 miles per hour. Arthur Chevrolet had done a lap at 75 miles per hour, a speed, together with the conditions, which may have brought about his early withdrawal. These examples perhaps will bring out vaguely the mental attitude of the drivers in the early circuits of the race and aid in showing how it was the predominance of the human over the mechanical that brought about the ruin of so many chances. Briefly glancing at the last half of the race it can scarcely be denied but that the road and the pace caused the three bèroken steering knuckles. The broken camshaft of the Royal Tourist, the broken crankshaft of the Harroun Marmon may have been due to insufficient lubrication for high speed. Those running at the finish had had their minor troubles and setbacks, although the big race was remarkably free from troubles, considering the field and the course. The excessive road vibration caused numerous gasoline leaks in the feed lines from the gasoline tanks to the carbureters, some of them breaking off entirely. Dawson, driving the Marmon, which finished but 25 seconds behind the Alco, stopped in the sixteenth lap for this trouble; Harroun had a line leak in his second lap, and the Amplex, which made such a remarkable motor performance, the hood not being lifted from start to finish of the race, had two long stops because of the gasoline tank sliding endwise on its supports and the pipe leaking. Manufacturers, previous to road races, study every possible way in which the speed of the motor can be increased in order to win the race, but they forget that if the car's speed is increased there may be other parts that will not prove strong enough for the ordeal. Scores of makers have suffered trouble due to this oversight. A car should be a harmonious unit and if by larger valves, lighter valves, lighter pistons, and other schemes, the car speed is increased 10 per cent, then there

THE LEFT HAND ILLUSTRATION SHOWS THE START OF THE WHEATLEY HILL RACE, NO. 46, FALCAR, THE WINNER, IN THE FOREGROUND. WITHIN THE CIRCLE IS ENDICOTT IN HIS COLE, WINNER OF THE MASSAPEQUA RACE

ABBOTT-DETROIT, SECOND IN MASSAPEQUA TROPHY RACE

STARTING THE CARS IN THE MASSAPEQUA TROPHY RACE

should be a bolstering up in the other parts of the car to maintain that desired perspective of strength among the many component parts.

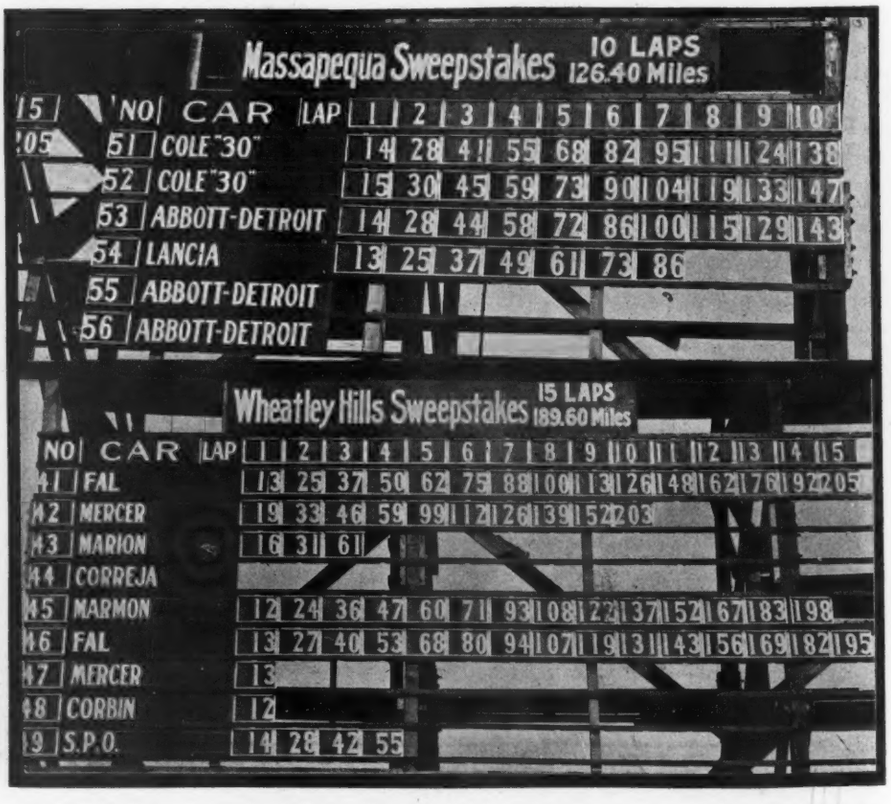
The amount of valve trouble was slight, considering the high motor speeds. Mulford changed the valve in the fourth cylinder half way through the race, the trouble being with the washer and pin supporting the valve rather than the valve itself. Wishart had trouble with the valve mechanism, which held him up for a long time. It is interesting to note that all of the cars with valve trouble were strictly stock cars, from which it might be concluded that long-distance, high-speed work demands valve attention, which attention has been given by the majority of those cars that were not stock, but were fixed up specially for this race as the rules allowed.

The carbureter difficulties are not so numerous in road races now as they were some years ago. Hanshue, in his Apperson, had the worst experience in this respect. The adjustment failed him in the first lap and heated up his motor. He stopped at the pits and changed the adjustment, but at the end of the second lap it was necessary to take the carbureter off entirely, but the job was well done and Hanshue had his car running in good condition at the end of the race. Livingstone got his carbureter adjustment disturbed early in the race and lost considerable time because of it. He also was handicapped by a broken clutch pedal.

It rarely happens that a road race of the magnitude of this one that radiator troubles do not eliminate several of the contestants, yet in this race there was not one car taken on it was because of faulty radiators or cooling excepting one or two cases, such as Matson's case and that of the American.

There were several examples of running gear troubles in the way of broken truss and radius rods. Scheifler stopped his Jackson at the end of the first lap, due to the radius rod bracket at the left end of the rear axle breaking. He lost 1 hour and 30 minutes sending for the repair parts and making the repair. Harding was flagged in the middle of the race and compelled, by the technical committee, to take off a broken truss rod under the rear axle. There was not a single case of spring trouble throughout the race. Wrecked wheels did not figure in the contest. The Houpt-Rockwell was halted for more than one-half hour because of oil getting on the brakes and rendering a drum inoperative. This car was flagged earlier in the race, and compelled to take off its shock absorbers which had broken loose and were trailing. There were other cases of broken shock absorbers.

Perhaps nothing serves to show the real value of stock cars as compared with special cars better than the recent Vanderbilt race. The winning Alco was a six-cylinder stock product except for a fine wire connecting from the carbureter throttle to the car seat, to be used in case of an emergency. The Marmon four, which finished second, was stock except for the double distributer mechanism used on the magneto and which device might be regarded as one of the features of the race. By means of the double distributer the possibilities of ignition troubles have been vastly reduced. The magneto using this double distributer employes two secondary armature windings, which are arranged in series. With the double distributer disk there are eight wires from the magneto, four going to one set of plugs and four to the other set. In the case



SCORE BOARDS FOR MASSAPEQUA AND WHEATLEY HILLS RACES—ONLY THE MINUTES REQUIRED IN EACH LAP WERE SHOWN

START OF THE FALCAR IN WHEATLEY HILLS RACE

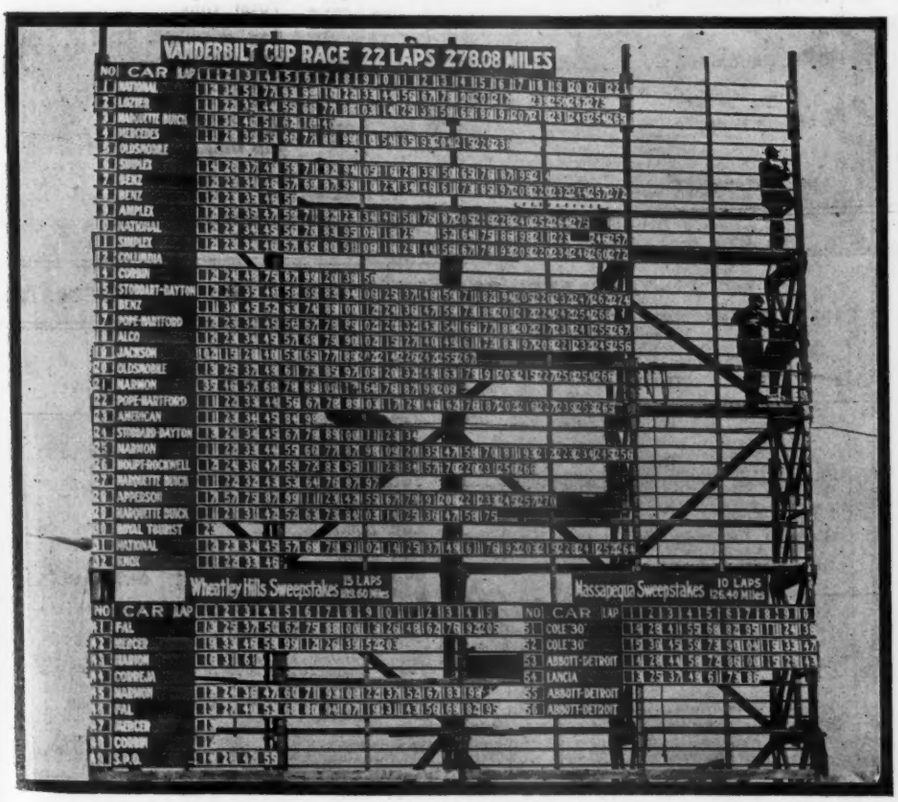
COLE CAR, THIRD IN THE MASSAPEQUA

of the National car, which finished third, there was only, so far as known, one small feature which differed from the stock car and that was a support for the carbureter on the crankcase, used doubtless to guard against the breaking of the intake manifold because of excessive road vibration. What was true of Aitken's National was also true of the National driven by Disbrow, and which finished fourth. The Lozier, driven by Mulford into fifth position, was stock with the exception of some few slight details.

The fact that the first five cars were practically stock in a race that was purposely made open, that is for special cars, proves beyond question the fact that the best and most reliable car for a road race is the legitimate stock article. There is a good reason for this. It rarely happens that the special car is a well-balanced product, generally one part has received the majority of the engineer's attention and it is out of all proportion in the matter of power and strength with the other parts of the car, the result being that the car being only as strong as its weakest part is soon out of the running. The best and most interesting race is the one among stock cars and with the big expense of racing at the present time, it is questionable if manufacturers will be able to enter in other than stock car events. It takes a long time and disorganizes a factory to bring out special racing machines, and in nine cases out of ten after they are completed they are only in the experimental stage and before one car is in tried and proven condition the company has spent enough money to bring out one of the best stock car models of the year.

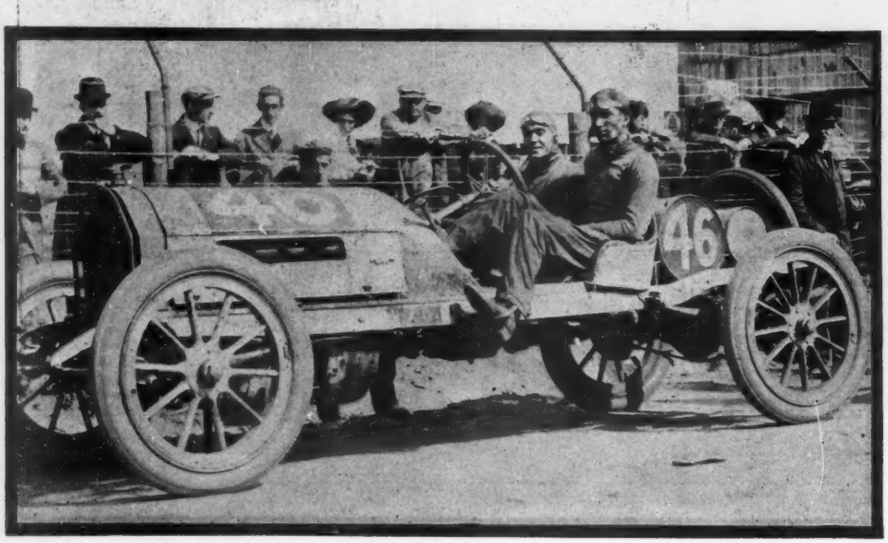
The honors of a great road race do not all belong to the car people, there are the accessory and parts people who watch every point in the running to see if their parts are giving a good account of themselves or not. In the tire question the Michelin had a runaway with everything, these tires being used on all of the Vanderbilt contestants with the exception of the Benz team, which used Continentals. The winning Cole in the Massapequa also used Michelin tires. In the ignition field the Bosch magneto was used on the winning Alco and on the Cole and Falcar. Kilgore shock absorbers were used on the winning Alco.

One phase of the race which appealed to many pit spectators was the generally poor arrangement for handling the repair and replenishment work, as well as the apparently poor organization of the pit workmen. Some of the tire changes were particularly slow and there was ofter a long drag in the filling of gasoline and oil. The slow tire work was largely due to the congestion at the pits. For road race work pits should be longer than the official 15 feet. Fifteen feet is enough if the cars do not all stop at once, but it almost invariably happens that two cars of the same make will stop at the same time. This occurred twice with the Pope team and as a result there was not enough room to work. This congestion made it impossible to use the lever jacks for repairing tires, so that only the conventional screw jack was employed. In not a few cases the cars rolled forward off the jack and valuable time was lost. Lack of discipline is a primary cause in waste of time at the pits. So often two men set about to do the same job, both stop, both start again, and before they decide who will do the work much valuable time has been lost. Preliminary training will always aid in such work.



THE BIG SCORE BOARD FOR ALL THREE RACES—THE SCORE KEEPERS WORKED BACK OF THE BOARD, INSERTING SQUARE SHEETS WITH THE REQUIRED FIGURES ON EACH

FALCAR FIRST AND SECOND IN THE WHEATLEY



GELNAW IN FAL AFTER WINNING WHEATLEY HILLS TROPHY

FOLLOWING up its recent clever performances in the west the Falcar celebrated its eastern debut by not only winning the Wheatley Hills sweepstakes but also securing second place. Gelnaw drove the winning Falcar, while second to him was his teammate Pearce, who, it will be remembered, was runner-up to Al Livingstone in the Illinois trophy race at Elgin. None of the other cars finished, the closest competitor being Heinemann in the Marmon, who was in his last lap when he got the flag. Gelnaw averaged 58.4 miles per hour—not so good a performance from a time standpoint as that of Harroun in the Marmon last year. Harroun's time in 1909 for the Wheatley distance of 189.6 miles was 190 minutes 21 2-5 seconds, whereas Gelnaw made the distance in 194 minutes 39 seconds.

This race brought to the tape seven cars of the 231-300 class. Besides the two Falcars there were the Marmon driven by Heinemann, the S. P. O. with Juhasz at the wheel, a Marion driven by Basle, a Corbin with Maisonville in the seat, and a Mercer driven by Fry. Heinemann started to make it a runaway from the jump, and from the pace he exhibited in the first half of the race it looked as if he would come close to the Vanderbilt figures themselves. For the first six laps of the fifteen-lap race he never once dropped below a mile-a-minute pace. His first round was at the rate of 62.11, his second at 64.36, his third at 65.54, his fourth at 64.73, his fifth at 61.99 and his sixth at 63.38. In the seventh lap, however, he began to experience ignition trouble and the little yellow car began to slow perceptibly. As it passed the stand it clearly was apparent that it was hitting only on three cylinders and the Marmon camp at once experienced palpitation of the heart. It took Heinemann 21:50 to make the seventh lap, and his rivals, Pearce and Gelnaw, took advantage of this. Pearce went into the lead and Gelnaw got within 30 seconds of the Marmonite on this circuit. The next time around Heinemann had dropped to third place and was bringing up the rear of the field, the others having been eliminated for one reason or another. Pearce had a comfortable lead over his teammate, there being nearly 6 minutes' difference between them. At this point it looked as if the senior member of the Falcar team would capture the honors, for he held his place to the end of the tenth round. A stop at this point gave Gelnaw his opportunity and at the end of the eleventh it was Gelnaw who was leading and who had 4 minutes' leeway over Pearce. The latter never was able to make up any of the lost ground, and landed in second place at the conclusion of the race.

The Marion lasted only 3 rounds and went out. Basle never once showed any speed. Maisonville in the Corbin stopped in the second round and the westerners recalled his ill-luck at Crown Point, where he got into difficulties in the first lap by stripping his brakes dodging a motor truck that was carrying soldiers, being obliged to go the rest of the way without the use of brakes. The Mercer driven by Fry also had hard luck and was put out in the second round, when it hit a telegraph pole in the backstretch.

TABULATED RESULTS OF THE MASSAPEQUA SWEEPSTAKES WON BY

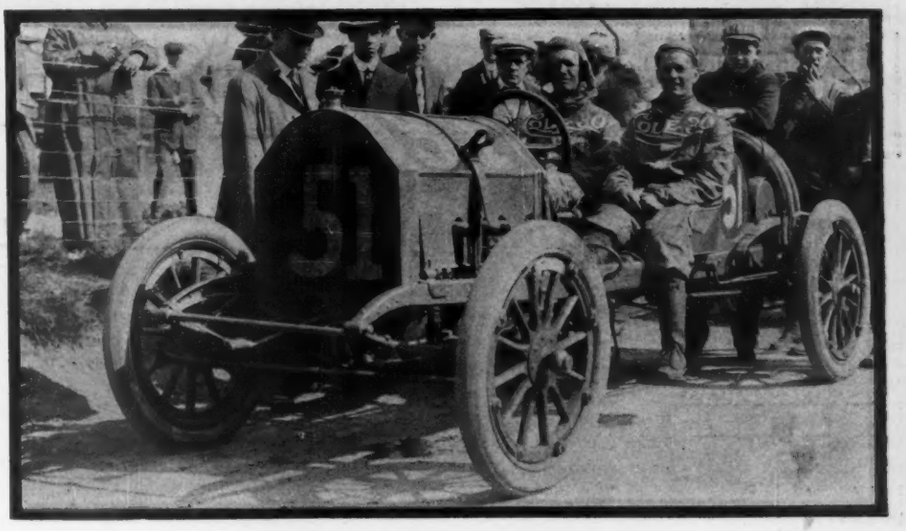
No.	Car and Driver.	Bore.	Stroke.	Cyl. Cap.	
51	Sole, W. Endicott	4	4	201.1	Total time Lap time Lap average Lap position
53	Abbott-Detroit, Roberts	4	4½	226.2	Total time Lap time Lap average Lap position
52	Cole, Edmunds	4	4	201.1	Total time Lap time Lap average Lap position
54	Lancia, Knipper	4	4½	226.2	Total time Lap time Lap average Lap position
56	Abbott-Detroit, Padula	4	4½	226.2	

TABULATED RESULTS OF WHEATLEY HILL SWEEPSTAKES

No.	Car and Driver.	Bore.	Stroke.	Cyl. Cap.		1	2	3	4
46	Falcar, Gelnaw	4⅛	5¼	280.6	Total time	13:24	26:40	39:48	52:53
					Lap time		13:16	13:08	13:05
					Lap average	56.95	55.94	57.74	57.38
					Lap position	5	3	3	3
41	Falcar, Pearce	4⅛	5¼	280.6	Total time	12:34	24:53	37:21	49:51
					Lap time		12:19	12:28	12:30
					Lap average	60.35	61.58	60.83	60.67
					Lap position	4	2	2	2
45	Marmon, Heinemann	4½	5	318.1	Total time	12:01	23:48	35:33	47:16
					Lap time		11:47	11:45	11:43
					Lap average	63.11	64.36	65.54	64.73
					Lap position	1	1	1	1
49	S. P. O., Juhasz	5⅛	4	330.1	Total time	14:11	28:03	41:49	55:12
					Lap time		13:52	13:46	13:23
					Lap average	53.47	54.69	55.08	56.52
					Lap position	6	4	4	4
43	Marion, Basle	4¼	4½	255.3	Total time	15:53	31:28	60:51	
					Lap time		15:35	19:23	
					Lap average	47.74	54.69	39.12	
					Lap position	7	5	6	
48	Corbin, Maisonville	4½	4¼	270.4	Total time	12:04			
					Lap time				
					Lap average	62.85			
					Lap position	2			
47	Mercer, Fry	4⅜	5	300.7	Total time	12:49			
					Lap average	59.17			
					Lap position	3			

COLE CAPTURES MASSAPEQUA SWEEPSTAKES

IN the Massapequa race, ten laps or 124.6 miles, a better percentage of finishers was shown than in the Wheatley, three of the five cars that started 30 minutes after the Wheatleyites being checked in for the full distance. The race itself was won by Bill Endicott in one of the two Coles, who averaged 55.73 miles per hour for the distance. As in the case of the Wheatley, last year's record for this minor classic was not touched by the Cole. A year ago Joe Matson in the Chalmers won the Massapequa in 129:52 2-5, while Endicott's time was 138:04 32. Second to the Cole after running a most consistent race was Roberts in one of the two Abbott-Detroits, who beat Edmunds in Cole No. 2 by quite a margin—more than 4 minutes. Besides these three cars mentioned there also started in this race the Lancia driven by Knipper and an Abbott-Detroit with Padula at the wheel.



ENDICOTT IN COLE, WINNER OF MASSAPEQUA TROPHY

As in the case of the Wheatley, the Massapequa was started from the east end of the pits and the first car off did not get the word until after 7:30, when the Vanderbilt itself had been running for an hour and a half. Slipping into the fray unobtrusively, Knipper in the Lancia started to beat it for fair. The Lancia showed that it retained all the speed that made it famous at Savannah 2 years ago, when it won the light-car race, and there was no evidence that the smash-up, which it encountered in training, when Knipper hit Burman in the Marquette-Buick, had damaged it any. Just as did Heinemann in the Wheatley, so did Knipper in this. For seven laps he was far in the lead and doing better than a mile a minute. On his first round he averaged 60.27, his second 62.33, his third 62.85, his fourth 61.74, his fifth 61.91, his sixth 62.94 and his seventh 62.51. Then he met his Waterloo. He swung into the Massapequa lodge turn at a terrific clip, failed to hold it, and went into the sand pile that was the graveyard of so many hopes. This accident stopped the car.

While Knipper was making his runaway in this manner, the others were not discouraged. Endicott, the ultimate winner, after being third on his first round, climbed into second immediately after and stayed there until Knipper went out, when he took the lead and held it to the end. Roberts in the Abbott-Detroit just as doggedly stuck in his place throughout the race. After being second for the first round, he dropped back to third until the elimination of Knipper, when he became runner-up to Endicott. Edmunds in the other Cole was far back most of the way, being fourth for seven laps and third for the remainder. The fifth contestant in this race, Padula in the Abbott-Detroit, did not get much of a run for his money. In fact, he only went a couple of miles before misfortune overtook him. His undoing came at the Massapequa lodge turn, where he hit a telegraph pole and went down and out. The accident resulted in injury to the driver and he was taken to the hospital. The results at the finish showed that Endicott had averaged 55.73 miles per hour, Roberts 53.02, and Edmunds 51.50. The complete tabulation, showing the lap time of the different contestants as well as the average of speed, is shown on this page.

ENDICOTT IN COLE WITH ROBERTS IN ABBOTT-DETROIT SECOND

	1	2	3	4	5	6	7	8	9	10	M.p.h.
.....	14:06	27:38	41:07	54:40	68:22	81:52	95:10	110:35	124:13	138:04.32	55.73
.....		13:32	12:29	13:33	17:15	13:30	13:18	15:25	13:38	13:51	
.....	53.76	56.0	60.75	56.0	42.99	56.17	57.01	49.20	55.62	54.76	
.....	3	2	2	2	2	2	2	1	1	1	
.....	14:12	28:02	44:16	58:08	72:22	86:20	100:19	114:31	128:53	143:02.13	53.02
.....		13:50	16:14	13:52	13:14	13:58	13:59	14:12	14:22	14:09	
.....	53.40	54.82	46.71	54.83	57.31	54.82	54.81	53.40	52.79	53.44	
.....	2	3	3	3	3	3	3	2	2	2	
.....	15:22	29:52	44:39	58:50	73:22	89:30	103:57	118:35	133:04	147:15.6	51.50
.....		14:30	14:47	14:11	14:32	16:08	14:27	14:38	14:19	14:11	
.....	49.35	52.30	51.31	53.41	52.32	47.00	52.48	51.84	52.97	53.41	
.....	4	4	4	4	4	4	4	3	3	3	
.....	12:35	24:45	36:49	49:06	61:21	73:24	85:32	Ditched.			
.....		12:10	12:04	12:17	12:15	12:03	12:08				
.....	60.27	62.33	62.85	61.74	61.91	62.94	62.51				
.....	1	1	1	1	1	1	1				
.....	Hit telegraph pole first lap.										

WON BY GELNAW IN FALCAR WITH PEARCE, FALCAR, SECOND

5	6	7	8	9	10	11	12	13	14	15	M.p.h.
67:35	79:46	93:48	106:38	118:54	130:59	143:06	155:49	168:49	181:47	194:39	58.4
14:42	12:11	14:02	12:50	12:16	12:05	12:07	12:43	13:00	11:58	12:52	
51.59	62.55	53.04	59.10	61.83	62.76	62.59	59.64	58.34	63.38	58.94	
3	3	3	2	2	2	1	1	1	1	1	
62:25	75:06	87:41	100:23	113:01	125:37	147:49	161:42	175:37	191:59	205:01.73	55.4
12:34	12:41	12:35	12:42	12:38	12:36	22:12	12:53	13:55	15:12	13:02	
60.35	59.80	60.27	59.72	60.03	60.19	34.16	58.87	54.45	38.92	58.19	
2	2	1	1	1	1	2	2	2	2	2	
59:30	71:28	93:18	107:36	122:18	137:10	152:04	166:50	182:34	197:59		
12:14	11:58	21:50	14:18	14:42	14:52	14:54	14:46	15:44	15:25		
61.99	63.38	34.73	52.87	51.59	51.01	50.89	51.35	48.20	48.11		
1	1	2	3	3	3	3	3	3	3		

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Protection Must Be Had for Road Races

THE board of governors of Nassau county, Long Island, displayed commendable wisdom when they decided that the grand prize race on October 15 should start at 10 o'clock in the morning instead of at daylight, the hour when the now-deplorable Vanderbilt was started. Shifting a starting hour from 6 until 10 has much more effect on the conduct of a race than might be expected because it was the 6 o'clock start which, in the opinion of Motor Age, was largely responsible for the unnecessary number of accidents to drivers and spectators during the race and to spectators before the race.

THE 6 o'clock start accomplished the object it was intended to: It was put on to draw a crowd, that crowd which lives on excitement and attends the race as much because of the all-night carousing and excitement as for the race itself. This crowd was on hand in overwhelming numbers and by the starting hour many in it were in no fit condition to stand along the side of an unfenced highway over which racing cars were to battle at speeds of nearly 70 miles per hour. These crowds had lost much of the nice sense of judgment of human safety, they had become emboldened and possessed with a spirit of fearlessness. They stood on the roadway with the racing cars passing not 2 feet from them, many of them crossed immediately in front of the cars so that the drivers had to slow down and masses stood along the edge of the roadway so that speedy cars had little chance of passing on the backstretch. It was the all-night excitement and the all-night doings which engendered this spirit in the spectators and it was this same spirit which resulted in many of the accidents. Crowds are in a much saner spirit for a 10 o'clock start. They can have the needed night's sleep and the needed breakfast instead of the stimulant and so have more respect for the rights of the drivers and for their own safety.

ALTHOUGH the most deplorable phase of the crowding on the course is seen in the accident list there is a great unwritten story of what might have happened had conditions been otherwise, and the course been entirely free of spectators from start to finish. In road races every man should have a fair show and the complaints made by the drivers nearly every time when they stopped at the grand stand told of the ordeal that was going on in the minds of them and the terrific yet unnecessary strain they were being subjected to. The crowds completely unnerved many of the drivers before a couple of laps were over. To some of them this meant creating a spirit of recklessness, whereas to others it bred fear, but in either case the net result was that the manufacturer and entrant suffered and the performance of his car in the race was not so favorable as if the driver had been in a settled mood from start to finish. This unnerved driver situation was largely responsible for many of the troubles that arose and robbed the contest of that real factor of "may the best car win." When manufacturers enter road races they should have every assurance that the crowds will be kept off and if promoters who take in over $18,000 entrance money and sell parking spaces for a single car at $60 cannot have enough money to pay for troops then the race should not be allowed to take place. It is not fair play to take all the money and not provide those safety precautions which common sense has dictated as necessary.

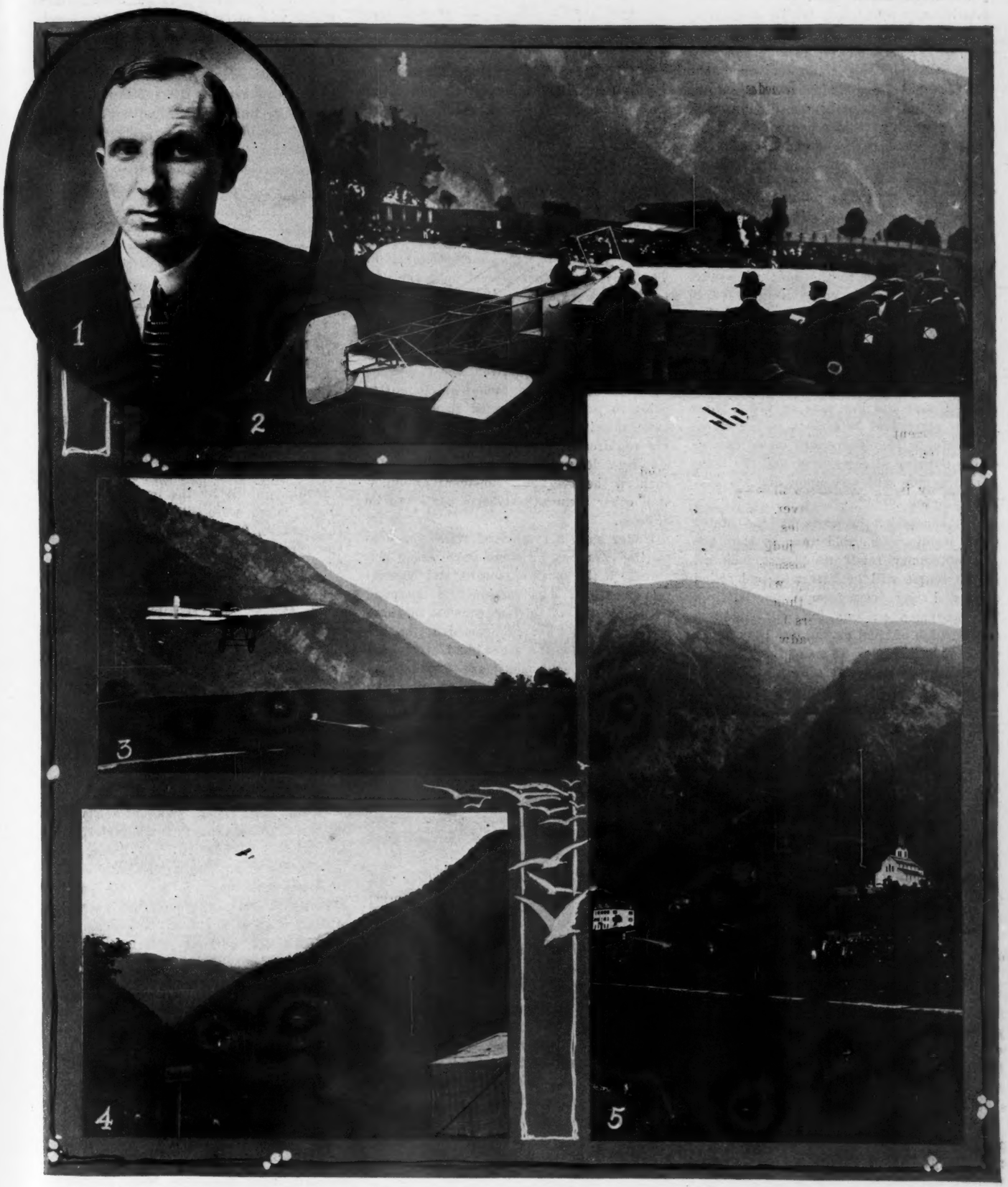
IT has been demonstrated half a dozen times that troops can keep a course clear no matter how great the crowd, provided the soldiers are worthy of the name and they are put on the course with their full uniform and with arms. Crowds are never hard to control provided the police or troops take control before the crowd is in control, but if you let the crowd gather and get in position then it is a difficult matter for the soldiers or police to move the spectators back to where they should be. It has always been urged that the New York crowd is harder to control than any other crowd, but the truth of such a statement is gravely questioned. From what has been observed and was observed at this year's race the New York crowd is no harder to control than a Chicago or Savannah crowd. On the homestretch when the crowd swarmed across the course after Grant had crossed the line it looked as if mob rule had begun, because in spite of police the course was soon black, but a couple of motor cycle men stopped the stampede and about all they had to do was simply ask the crowd to stay off the course and the crowd did. If reports are true that many police were drinking beer and whisky handed to them by the spectators instead of being on duty, the question is quickly answered as to why the crowds got on the course.

NEW YORK would be absolutely amazed at itself at the next Vanderbilt if it had a regiment of real troops to guard the course. The crowds would not get on the course any more than they did at Elgin or Savannah, but it costs money to get troops and where road races are run apparently for personal gain instead of for boosting the industry it is questionable if troops will ever be obtained until the controlling body refuses to give a sanction until they are secured.

THERE was not enough money spent in protective measures at the Vanderbilt course. With the exception of the motor parkway very little of the remainder of the course was fenced on either side. There was no fixed line to which the crowd could come but no farther. This was wrong. At Savannah and at Elgin every foot of the course was fenced and where fences did not exist the promoters built them at their own expense. The Vanderbilt promoters had enough entrance money to have fenced the entire course, to have put the roadway in more rational racing condition and to have hired a regiment of soldiers had they had the inclination to do so.

ONE more road race like the Vanderbilt last week and it will be impossible to secure the right to run road races in most of the suitable places in the country. The American citizen revolts at such slaughter and particularly so when financial gain to promoters apparently stands in the way of protection and safety to the drivers and spectators. If promoters hope to make money out of a sporting event of this nature they should only make it after the most adequate safety precautions have been taken, and if they refuse to take such precautions because of the expense they should not be granted a sanction for such event. The motor industry is too great an industry to be placed in the hands of a few promoters and ruthlessly slaughtered for their gain. Such conditions must cease and cease at once, otherwise the masses will suffer for the benefit of the few.

GIANT ALPS HAVE NO TERRORS FOR THE MOTOR



At last an aeroplane has made the passage of the Alps, the feat being accomplished by George Chavez, who lost his life in so doing. No. 1 is a photograph of Chavez; No. 2 shows him at start of flight; No. 3, leaving Brigue; No. 4, passing over Simplon; No. 5, Weymann over Simplon pass. In this flight Chavez had negotiated the Simplon at a height of 450 feet, and had all but won the prize of $20,000 offered by the Italian society when he met his sad fate. A gust of wind took him unawares and his life was the forfeit. The accident took place at a point near Domodossola, on the Italian side of the Alps.

GRAND PRIX RACE TO RUN AS SCHEDULED

NEW YORK, Oct. 4—The grand prix will be run a week from Saturday, as originally scheduled, despite the outcry that followed the bloody Vanderbilt, when some of the more excited residents of New York city and Long Island demanded that the big race be abandoned. The Motor Cups Holding Co., of course, did not look with favor upon this proposition and decided to stand pat, whereupon the board of supervisors of Nassau county was appealed to, it being demanded that the supervisors revoke the permission for the running of the race over the Long Island country roads. A conference was held at the Garden City hotel Sunday night and both parties came to the conclusion that much of the trouble could be avoided if the daylight start were abandoned, it being figured that the early getaway would stop people going out to the course the night before and becoming unruly from weariness and other things. Therefore, it was decided that the big race of 379.2 miles will be started at 10 o'clock in the morning, October 15. There will be no change in the policing of the course, and the Long Island people will rely upon deputy sheriffs, as heretofore.

One concession is made by the Motor Cups Holding Co., and that is that the Nassau county roads which are included in the course will be harrowed and rolled down and the corners given an overhauling. The workmen on this job will complete each stretch of road on the day they begin work on it in order to make it easier for the drivers in their training. Practice is scheduled to start tomorrow morning and will be permitted each day between the hours of 5 and 8 a. m., the same as it was for the Vanderbilt.

This was not the only sensation in aftermath of the Vanderbilt. Another surprise came today when it was announced that the entry of the three Benz cars in the grand prix had been rejected. This action was made known in a letter sent by W. K. Vanderbilt Jr., president of the Motor Cups Holding Co., to Jesse Froelich, the Benz representative, returning the entrance fees of the company. The letter says:

"In view of the letter sent to our manager, Mr. Pardington, and simultaneously published in the papers, and the criticism you make of the management of the race, which we consider to be absolutely uncalled for and unwarranted, we do not think it wise that the cars under your management should compete."

Froelich's letter sharply criticised the policing of the course at the Vanderbilt cup race and declared that unless he was assured the course would be adequately guarded the Benz entries would be withdrawn from the grand prize. It also urged contestants to coöperate in an effort to send the contest to Savannah, Ga.

The rejection of the Benz cars brought out an attack on Mr. Vanderbilt from W. H. Pickens, representative of the Benz company, and manager of Barney Oldfield. He was unqualified in his denunciation of the proposed race, declaring that it would be discredited and ignored. He added that he would head a movement looking toward holding another grand prize race at Savannah later.

Entirely different in its conditions from any other road race in the United States this year is the grand prize contest for the $5,000 gold challenge cup of the Automobile Club of America, which will be held on the Vanderbilt cup course October 15. The only limitations placed upon the contesting cars are as to width, which must not exceed 68.89 inches; exhaust, which must not be directed toward the ground, and each car must have a reverse gear driven by the motor. In addition, the cars must be examined by the technical committee prior to practice and must secure certificates showing that they are safe. The cars are required to carry two persons seated side by side, weighing at least 134 pounds each on the average. No agent of oxidation other than atmospheric air is to be allowed.

Under such a system of rules, the contesting cars may be simon-pure racing machines with special motors and special refinements of construction and equipped with any sort of device to assist mechanical operation that is deemed to be advantageous. On the other hand, stock cars with racing equipment are not barred. There is no limit on the size of engine to be used. Cars with 9-inch cylinders are eligible, just as are those of half that diameter.

The original intention was to have the distance of the race twenty-two laps on the 12.64-mile course, but later it was decided to increase the length of the run to thirty laps, which makes the distance 379.2 miles.

The start will be at 10 a. m., but owing to the moderate-sized field the intervals at which the contestants will be sent away will be 30 seconds.

The entry list to date this year consists of three trios and four single entries. Under the rules, each car must represent a member of the International Association of Recognized Automobile Clubs, and while three countries are represented only two clubs have been certified. The Kaiserlicher Automobile Club of Berlin was represented by the three Benz cars before they were rejected, while the other dozen in the list are credited to the Automobile Club of America. This classification is broader than it really should be as the Fiat trio, Italian cars, are included among those which will carry the colors of the American club. The same may be said for the Mercedes, entered by George W. Loft.

The sure-enough American cars that are carded to start are three Marmons; three Marquette-Buicks; an Alco; a Ford, and a special Roebling-Planche. Thus there are one German car, three Italian, and eight Americans in the race.

From the viewpoint of actual money prizes, the grand prize is the richest in America. The Motor Cups Holding Co. has hung up $7,000 for the winner and placed cars, and while only $1,000 in supplementary and accessory prizes has been offered so far. Before the day of the race dawns the list will undoubtedly be largely augmented. The race October 15 is the second that has been held for the magnificent trophy and purses. The former runoff was held at Savannah, Ga., Thanksgiving Day, 1908, and the money prizes for that event approximated $20,000. There were twenty starters, fourteen of which were the cream of European workmanship, guided by the best talent available. There were six American cars in the contest, but they were outclassed by the foreigners. The race was won by a Fiat, driven by Louis Wagner, who also will drive another Fiat in the coming race. His win was spectacular and sensational in the extreme and was largely due to an element of racing luck in the final round. The winning Fiat, a Benz driven by Hemery and another Fiat, driven by Nazzaro, had been running neck-and-neck since passing the middle ground of the course. For the last eight laps these cars alternated in the lead, and upon entering the final round Nazzaro's Fiat had established what seemed a winning margin over the Benz racer. Wagner's Fiat was in third place, about 2 minutes behind the leader. While in full flight, after passing the stand, Nazzaro suffered a puncture and time spent in repairs wiped out his lead. Then another puncture intervened and his chances for first place went winging. Wagner, without suffering any mishaps, swung over the line 56 seconds ahead of the Benz, while the unfortunate Nazzaro was third.

The entries for the race are as follows:

Car and entrant	Driver
Fiat, Fiat Auto Co.	Louis Wagner
Fiat, Fiat Auto Co.	Ralph DePalma
Fiat, Fiat Auto Co.	Felice Nazarro
Marmon, Nordyke-Marmon Co.	Ray Harroun
Marmon, Nordyke-Marmon Co.	Joseph Dawson
Marmon, Nordyke-Marmon Co.	
Marquette-Buick, Marquette Motor Co.	Louis Chevrolet
Marquette-Buick, Marquette Motor Co.	Robert Burman
Marquette-Buick, Marquette Motor Co.	Arthur Chevrolet
Roebling-Planche, W. A. Roebling 2d.	W. A. Roeblindg 2nd
Alco, A. L. Co.	Harry F. Grant
Mercedes, George W. Loft.	G. H. Armstrong
Ford, Ford Motor Co.	Kulick

FAIRMOUNT PARK RACE HAS BIG ENTRY LIST

PHILADELPHIA, PA., Oct. 4—A tremendous impetus was given the entry list of the Fairmount Park road race last night and the event next Saturday will surpass all former records for entries and attendance, judging by the amount of enthusiasm being shown in the practice spins in the early morning. Up until a late hour last night the list of entrants totaled twenty-eight, and, as post entries will be received, it is confidently expected that thirty cars will start. One car, the Alco, has been withdrawn, with the explanation from the company that the three races—the Vanderbilt cup, the Fairmount park and the grand prize—coming on three successive Saturdays, it would be too much for the driver. Entries came in with a rush yesterday—two Nationals, two Stoddard-Daytons, Mercedes, Mercer, two Marmons, Simplex, Corbin, three Abbott-Detroits, Lozier and another Apperson. With a field of thirty and the course faster this year than in the 2 preceding years, not only the record for the entire course, but the record of 8 minutes 47 seconds for a lap, made last year by Len Zengel in a Chadwick, should be broken.

There were about 5,000 persons out at sunrise yesterday, the first morning scheduled for practice, and six drivers sped around the 8-mile course until 7:30, at which hour trials must stop. Being the first time, the drivers didn't cut loose and there were no speed thrills, but, beginning this morning, real practice will start, and the cars will be let out to see what they can do.

Every effort is being put forth to prevent a repetition of any such accidents as marred the Vanderbilt race last week, and not only will this be true on the day of the race, but during the practice every precaution will be taken and ropes drawn on each side of the course and no one allowed to stray out into the road. Similarly, a policeman is stationed at each entrance of the park to prevent the entrance of any vehicle between 6 and 7:30 a. m. This will be the rule throughout the week.

Instructions for contestants have been issued and cars will be examined for piston displacement tomorrow after practice at the garage of the White company, 629 North Broad street. The drawing for racing numbers will also take place tomorrow. The entries are as follows:

Car	Driver
Chadwick	Len Zengel
Chadwick	Al. Mitchell
Benz	Irwin Bergdoll
Benz	Ed Hearne
Apperson	H. M. Hanshue
Jackson	Schiefler
Cole 30	Bill Endicott
Cole 30	Harry Endicott
Simplex	Betz
Simplex	W. C. Mullen
Ford	Frank Kulick
Benz	Al Hall
Benz	C. A. Bergdoll
Marmon	Harroun
Marmon	Dawson
Stoddard-Dayton	Hugh N. Harding
Stoddard-Dayton	T. De Hymel
Mercedes	T. J. Wasser
National	Johnny Aitken
National	Wilcox
Mercer	H. Frey
Simplex	Ralph Beardsley
Corbin	Joe Matson
Abbott-Detroit	Mortimer Roberts
Abbott-Detroit	Vincente Padula
Abbott-Detroit	Montague Roberts
Lozier	Ralph Mulford
Apperson	George Davis

NEW GENERAL MOTORS DEAL

New York, Oct. 5—Special telegram—Definite announcement of the financial plan to solve the tangled problem of the General Motors Co. was made late this afternoon when it was officially stated that Z. Z. J. and J. W. Siligman & Co., of New York, and Lee, Higginson & Co., of Boston, had underwritten an issue of $15,000,000 6 per cent first lien, 5-year gold notes based upon all the assets of the twenty-one component companies, representing in the holdings of the General Motors Co. These companies are: Buick Motor Co., Cadillac Motor Car Co., Olds Motor Works, Marquette Motor Co., Cartercar Co., Oakland Motor Car Co., Rapid Motor Vehicle Co., Northway Motor and Manufacturing Co., Elmore Manufacturing Co., Reliance Motor Truck, Welch Co. of Detroit, Weston-Mott Co., Randolph Motor Car Co., Welch Motor Car Co. of Pontiac, the Jackson-Church-Wilcox Co., Michigan Motor Casting Co., Champion Ignition Co., Michigan Auto Parts Co., McLaughlin Motor Car Co., Ltd., General Motors Co. of Michigan, Oak Park Power Co. The total issue authorized was $20,000,000, but the remainder, not included in the terms of the underwriting, may only be issued with the approval of the company's finance committee, which is to be nominated by the bankers.

The issue is designated, possibly, as sinking fund notes. The assets of General Motors are estimated by the bankers at $37,383,000, about $12,000,000 of which is represented by real estate holdings and equipment of plants subject to real estate obligations aggregating $266,500.

The funded debt and capital stock of General Motors, including the new issue, will be assumed as follows: $15,000,000, first lien, 6 per cent 5-year sinking fund gold notes; $17,835,400 7 per cent cumulative preferred stock, $2,800,000 of which $20,835,030 is common stock.

The Central Trust Co., of New York, has been designated as trustee, and mortgages, notes and shares of stock of the subsidiary company securing the issue will be deposited under the trust, which has been explained. The majority of the stock, deposited under a voting trust agreement, will be voted by the trustees designated by the bankers, who will nominate a majority of the board of directors of the company within 3 weeks. This applies also to the subsidiary companies. Six out of seven members of the finance committee of General Motors and a comptroller for each of the component companies will be selected. The whole transaction simply means that the control of General Motors, with all it represents, has passed into the hands of a board of directors and a finance committee named by the financial interests, which have underwritten the notes. They will administer the properties the next 5 years, and if at the expiration of that period the notes have been taken up control of the property will revert to the present owners.

VELIE SCORES A POINT

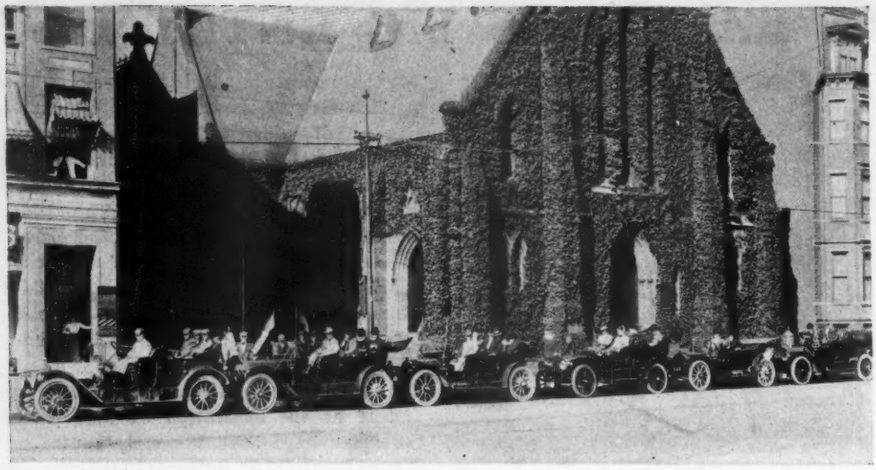
Madison, Wis., Oct. 4—The Velie Motor Vehicle Co., of Moline, Ill., scored an important point in its suit for $500,000 damages on charges of conspiracy against a number of motor car companies which are members of the A. L. A. M., when the supreme court of Wisconsin denied the motion of the defendants for a writ of prohibition to prevent the circuit court for Milwaukee county from assuming jurisdiction in the case. The defendants concerned are: The Locomobile Co. of America, Bridgeport, Conn.; Pope Mfg. Co., Hartford, Conn.; Chalmers Motor Co., Detroit, Mich., and Pierce-Arrow Motor Co., Buffalo, N. Y. The decision of the court, handed down today, means that the process will be continued. The extraordinary remedy of suing for a writ of prohibition was invoked by the defendants last May, in order to stop all further action in the suit. The supreme court stood four to three in favor of denying the writ. The demurrer of the Kopmeier Motor Car Co., of Milwaukee, the only one of the twenty-six defendants in the suit to be a dealer, the remainder being manufacturers, was upheld some time ago by the Milwaukee circuit court. Proceedings are halted temporarily.

ERLE IN SENSATIONAL CLIMB

Paris, Oct. 2—Fritz Erle in a Benz today won the honors in the twelfth annual Gaillon hill-climb when he made the ascent in :23, which is at the rate of 98 miles an hour. The distance covered was 1 kilometer, while the hill has a 9 per cent grade. Erle smashed a previous record of :25 which was made in 1906 by Lee Guiness in a Darracq.

E-M-F LOWERS PRICES

Detroit, Mich., Oct. 5—Special telegram—The E-M-F Co. today announces a sweeping reduction in the price of its cars.' The price of the E-M-F is reduced $250 and the Flanders 20 $50. These prices will take effect at once. The reduction, it is said, will in no way affect the dealers' discount or the company's margin of profit.



BOSTONIANS GREETING THOMAS CAR HIGH-GEAR DEMONSTRATING TRIP

Firestone the Big Winner at Omaha

OMAHA, NEB.—Oct. 3—Five thousand people saw the 2 days' racing meet at the new Omaha mile speedway Saturday and Sunday. The feature of both days' racing was the spectacular manner in which Ed Richenbacher, in a Firestone-Columbus, monopolized the honors in all the events in which he was entered. Out of nine events in which he started, Richenbacher finished first eight times, and third once.

In the first event on Saturday, a 5-mile free-for-all, a Chalmers 40 driven by H. E. Fredrickson took first place. A Midland driven by Ashley, his maiden race, took second place and a Stevens-Duryea driven by Harry Woodruff, of Sioux City, was third.

The Firestone-Columbus and the Hudson see-sawed for first place throughout the 10-mile event for cars selling for $1,500 or under. The Firestone-Columbus finally came to the front a winner in 13:13⅘.

Just before the last race was started, a telegram was received by A. K. Chambers, referee, from Chairman Butler of the contest board of the A. A. A. stating that the Firestone-Columbus was not eligible in a race for cars selling for $1,500 or less, as it sold for $1,650. Driver Richenbacher insisted that he could show that his car does sell at $1,500 and was permitted to enter with the understanding that if he fails to prove his claim he will not be credited with winning the race. The matter will be referred to L. McShane, official representative of the A. A. A.

Trouble with the carbureter of a Henry, driven by Walter Smith, nearly resulted in an accident in the 10-mile contest for cars selling for $2,000 or less. In the third lap, the Henry went wrong and Smith stopped his car on the inside of the track to fix it. Rounding the curve, a Cadillac saw the red danger flags only just in time to avoid a collision by clever work at the wheel. Richenbacher's Firestone-Columbus won this event in 11:06, a Velie coming second after making a real good fight.

In the feature event, the 20-mile free-for-all, interest centered in two pretty races for second and third position, the Firestone-Columbus car taking first easily. A Chalmers took second and a Cadillac third. Summary:

Five miles, stock cars—Fredrickson, Chalmers, won, time 6:05; Ashley, Midland, second; Woodruff, Stevens-Duryea, third.

Five miles, care $1,000 and under—Bruner, Hudson, won, time 6:25.

Ten miles, cars $1,500 or less—Richenbacher, Firestone-Columbus, won, time 13:13⅘; Bruner, Hudson, second; Smith, Hupmobile, third.

Ten miles, cars $2,000 or less—Richenbacher, Firestone-Columbus, won, time 11:06; Stickney, Velie, second; Nygaard, Cadillac, third.

One mile, flying start—Richenbacher, Firestone-Columbus, won, time 1:07⅗, Fredrickson, Chalmers, second.

Twenty miles, free-for-all—Richenbacher, Firestone-Columbus, won, time 21:45⅖; Fredrickson, Chalmers, second; Stickney, Velie, third.

Sunday's races were a repetition of Saturday's program, so far as the winning of events by Richenbacher in his Firestone-Columbus was concerned. Entered in five races, he took four firsts and one third.

In the 10-mile event for the cup offered by the Western Automobile Supply Co., a Cadillac driven by Reim, was first in 11:45. Fredrickson, in a Chalmers, looked like a winner for 4 miles and then had carbureter trouble. Fredrickson later protested the race on the ground that the Cadillac and Midland cars competing against him were not fully equipped as called for by the conditions of the race. In the 10-mile race for cars selling under $2,000 the Firestone-Columbus took first in 11:25⅖. The Velie was second and Cadillac third. In the 10-mile race for cars selling at $3,000 or under, it was the same old story, with the Firestone-Columbus leading the bunch in 11:07⅗. The Warren-Detroit was second and Chalmers third.

The Firestone-Columbus did not appear to advantage in the obstacle race. The rules require that the drivers stop directly at the end of each mile, kill their engines and then re-crank them. In the first 3 miles the Firestone ran from 100 to 200 feet beyond the tape and lost considerable time in backing up. The Velie won with the Chalmers second, the latter making a protest. The Firestone car was third. The Firestone, which won the Rome Miller cup Saturday for the record mile on the new track, attempted to lower the record of 1:07⅕, made Saturday, but 1:07⅗ was the best it could do Sunday. Of the seven cars that started in the 25-mile free-for-all, only three finished, the Firestone first, Cadillac second, and Midland third. Summary:

Ten miles, fully equipped touring cars—Reim, Cadillac, won, time 11:45; Ashley, Midland, second.

Ten miles, cars $2,000 and under—Richenbacher, Firestone-Columbus, won, time 11:25⅖; Stickney, Velie, second; Reim, Cadillac, third.

Ten miles, cars $2,001 to $3,000—Richenbacher, Firestone-Columbus, won, time 11:07⅗; Warren-Detroit, second; Fredrickson, Chalmers, third.

Five-mile obstacle race—Stickney, Velie, won; Fredrickson, Chalmers, second; Richenbacher, Firestone-Columbus, third.

One-mile flying start—Richenbacher, Firestone-Columbus, won, time 1:07; Ashley, Midland, second.

Twenty-five-mile free-for-all—Richenbacher, Firestone-Columbus, won, time 26:57½; Reim, Cadillac, second; Ashley, Midland, third.

OUTLOOK IN IOWA

Des Moines, Ia., Oct. 1—Iowa, the greatest agricultural state in the union, has spent $27,000,000 in the last 5 years for motor cars. This is not an idle boast of an overzealous motoring enthusiast, but is the figure given by the secretary of state of Iowa, with whom every car which comes into Iowa must be registered.

Since January 1, 1905, 21,315 cars have been registered with the secretary of state. Counting those purchased in the first 3 years at $1,500 each and the remainder at $1,300, the total amount of money spent in bringing motor cars to the Iowa residents is $27,573,000.

Des Moines dealers, who sold most of the cars, say that at least three-fourths of them sold in the state went to his royal highness, the Iowa farmer. Five years ago there were 799 cars in the Hawkeye state and the secretary of state put on a value of $1,198,500. The next 2 years there was a steady increase, but beginning with 1907 the increase has been almost astounding. The present year has outdistanced all others and up to today 9,298 cars had been licensed since the beginning of the year. Local dealers who have studied the situation thoroughly say that the fall business will bring the total for the year up to twice what it was in 1909. The coffers of the state have been enriched to the extent of $45,000 by the license fees paid by the owners this year.

Des Moines, the capital city of the state and the place at which nearly all the state headquarters for the companies doing business in the state are located, has 1,200 cars, according to John Gibson, president of the Iowa Automobile Club. Of the 9,200 cars sold in Iowa, 4,500 went through the Des Moines dealers. At the present time there are twenty-nine dealers here, and while a few of them have their territory confined to a few counties in the

immediate vicinity to Des Moines, the majority has the entire state. Many of the big factories are recognizing the importance of Iowa as a field and are centralizing their energies in the state. At the present time the Buick company is having plans completed for a four-story building here, which will be the state headquarters for the company. All the subagencies will be handled through the office of W. J. Riddell, the state manager, and a supply of from 100 to 500 cars will be kept in stock at all times. The United States Motors Co. also has united all its Iowa agencies here and the local company will be known as the United Motors Des Moines Co. Another big company to centralize its Iowa force here is the Chalmers, which discontinued its sub-agency here and sent out J. R. Ryan from the Detroit offices to take charge of the state headquarters here.

Never before in the history of the state has the interest in motor cars been so great and this interest in cars, which has led to a revival in good roads doctrine, bids fair to make Iowa known all over the country for its good roads. Already one highway, the river-to-river road, has been brought to a great success through the efforts of the motorists, and a few enterprising newspapers. This road, which has been dragged from end to end in an hour, reaches across the state from Davenport to Omaha, and already three other cross-state dragged roads have been proposed and are in operation. The transcontinental follows the Chicago and Northwestern railroad across the state, while in the northern section of the state, connecting Dubuque and Sioux City, is the Hawkeye highway.

Des Moines dealers and owners who are interested in the racing game will pull off the biggest race meet ever held in the state on October 6, at the state fair grounds. Purses totaling $1,500 have been hung up and a program of seven events will be run off. The local dealers also have their plans well outlined for the second annual show, which will be held at the Coliseum in March.

THOMAS FINISHES TEST

Buffalo, N. Y., Oct. 3—A 1911 model M 6-40 Thomas Flyer has just finished a remarkable 2,500-mile run, the feature of which was the fact that the car only had two gears, high and reverse, the other two having been removed and the gearbox sealed. The Thomas made the 2,500 miles in 10 traveling days and was driven by George Miller, the New York-Paris racing driver. The test was made to demonstrate the flexibility of the long-stroke large-valve six-cylinder motor, and the journey included runs through the Green and White mountains, with the turning point at Boston. On the final day of the run the car came from Amsterdam, N. Y., a distance of 283 miles, reaching here at 9 o'clock Saturday night. The test has proven an interesting one.

MOTOR CAR AND HORSE ENGAGED IN MAXWELL ECONOMY TEST

Motor Shows Economy of Operation

NEW YORK, Sept. 29—Official figures of the first recognized economy tests between a motor car and a horse and buggy, which is being conducted in New York and vicinity by the Maxwell-Briscoe Motor Co., showed results that are very much in favor of the motor car as against the horse, the proportion of cost per passenger-mile by motor being less than one-half the cost of horse-travel under identical conditions. This comparison is based only upon the first 3 days' operation on Monday, Tuesday and Wednesday of this week. The test will be continued until both vehicles have been driven 6 days over the same route and the same number of hours. It has been sanctioned and is directed by the contest board of the American Automobile Association, according to stringent rules formulated by the Maxwell-Briscoe company to secure an authentic basis of comparison. It is the first time that the two methods of transportation have been placed in actual competition and the final results should dispel any doubt as to their comparative economy.

The Maxwell company delivered a model Q four-cylinder car and a sound road horse and buggy to observers appointed by the American Automobile Association. From the moment of the start the test was out of the company's control. The observers are George H. Lovell and Horace Dames, alternating each day in their riding assignments. The routes provide a fair average of road and traffic conditions. The first day's trip was entirely within the New York city limits. The second was on the eastern end of Long Island and the third in New Jersey. Following are the results of the 3 days' test:

	Motor	Horse
FIRST DAY		
Mileage	67.4	28.8
Cost	$1.00	$ .95
Cost per mile	.014	.032
Per passenger-mile	.007	.016
SECOND DAY		
Mileage	76.1	35.5
Cost	$ .92	$ .95
Cost per mile	.012	.027
Per passenger-mile	.006	.013
THIRD DAY		
Mileage	76.3	31.2
Cost	$1.12	$ .95
Cost per mile	.014	.03
Per passenger-mile	.007	.015

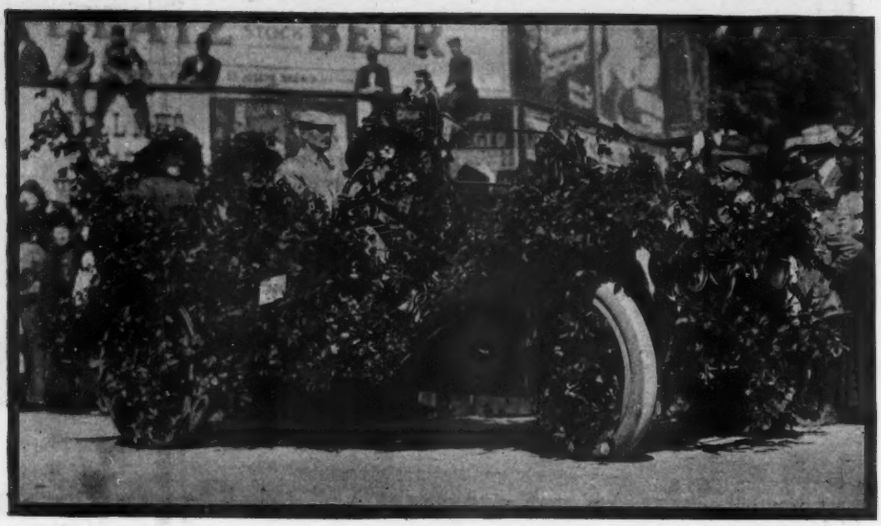
The horse's upkeep is based upon retail prices of hay and oats actually paid en route, just the same as gasoline and oil was purchased for the motor car. It will be noted from the figures that the motor's mileage for each day's running time was clearly within speed limits and that the horse is a good roader to average 31.8 miles a day.

The contest is an important adjunct to the offer by the Maxwell-Briscoe Motor Co. to sell models identical to the one used in the test, under a guarantee that the cost will not exceed 2 cents per passenger-mile or a refund of the purchaser's price will be made, plus interest.

KELSEY CLIMBS MT. WASHINGTON

Hartford, Conn., Oct. 1—C. W. Kelsey, driving a Kelsey three-wheeled motorette, successfully negotiated the 8-mile climb up Mount Washington Wednesday in a two-cylinder air-cooled three-wheeled motorette, carrying one passenger, the time for the climb being 3 hours 50 minutes. The motorette is the smallest car ever to ascend Mount Washington. T. Jefferson Kelley, of Hartford, accompanied Mr. Kelsey during the entire trip. The start was made Tuesday afternoon at 3:30 o'clock, a permit to make the trip having first to be secured. The half-way house on the side of the slope was reached at 5:30. As it was getting very dark and the clouds were threatening, the trip was abandoned for the night and resumed the next morning at 7:30, the little motorette reaching the summit at 9:30. The last leg of the trip, that is from the Mountain house to the summit, was a hard proposition, as the roadway was wet and slippery, owing to the heavy rains of Tuesday evening. The arrival of Kelsey at the top of the mountain occasioned great surprise, as his was the first car to make the trip this year. Mount Washington has always been an interesting testing place.

FALCAR STARS AT ILLINOIS STATE FAIR MEET



At St. Joe—Ernest Mueller's Stoddard, Winner of First Prize

SPRINGFIELD, Ill., Oct. 1—A well-balanced racing card was run off this afternoon, which was motor car day at the state fair, the feature of the day being the work of Hughey Hughes in a Falcar, who won five of the ten races, being first in everything in which he competed. Among the five events was a club championship race, the cup going to the Chicago Motor Club through the clever driving of Hughes. The long-distance event of the afternoon was a 20-mile race, won by the Falcar, which defeated the Jackson, Moon and Knox, the last named driven by Oldfield. The 20 miles was done in 20:03 3-5—almost a mile a minute.

The card was brought to a sudden end by an accident which resulted in the death of LaRue Vredenburgh, president of the Springfield Automobile Club, treasurer of the Peter Vredenburgh Lumber Co. and a member of one of the wealthiest families in central Illinois. The fatal accident occurred on the eighth mile of the 20-mile race for the Franklin Life trophy. Vredenburgh had distinguished himself earlier in the day by being placed in several events. At the time of the accident he was racing neck and neck with Phil Wells, in a Moon. It is supposed the local driver was attempting to pass Wells on the west turn, at the ¾-mile post, when the St. Louis man swung wide. Vredenburgh chose to go through the fence instead of running into Wells.

Young Vredenburgh's body was in an ambulance and started toward Springfield before the spectators knew he was killed. The remaining events were called off.

Summary:

Five-mile race for fully-equipped stock cars, amateurs—Bisch, Jackson, won; Vredenburgh, Stoddard-Dayton, second; Hicks, Chalmers, third. Time, 5:42.

Ten-mile race for the first annual club championship for cars under 600 cubic inches displacement—Hughes, Chicago Motor Club, Falcar, won; Slagel, Cutting, second; Vredenburgh, Stoddard-Dayton, third. Time, 10:28⅗.

Five-mile race, open to gasoline stock chassis of 231-300 inches displacement—Hughes, Falcar, won; Farr, Buick, second; Cheney, Staver-Chicago, third. Time, 5:15.

Ten-mile race, class B, open to gasoline stock chassis of 161-230 cubic inches displacement—Farr, Buick, won; Monckmeier, Staver-Chicago, second; Hicks, Chalmers, third. Time, 10:14⅘.

Five-mile race, class B, division 4-B, open to gasoline cars of 301-450 cubic inches displacement—Hughes, Falcar, won; Slagel, Buick, second; Vredenburgh, Stoddard-Dayton, third. Time, 5:14.

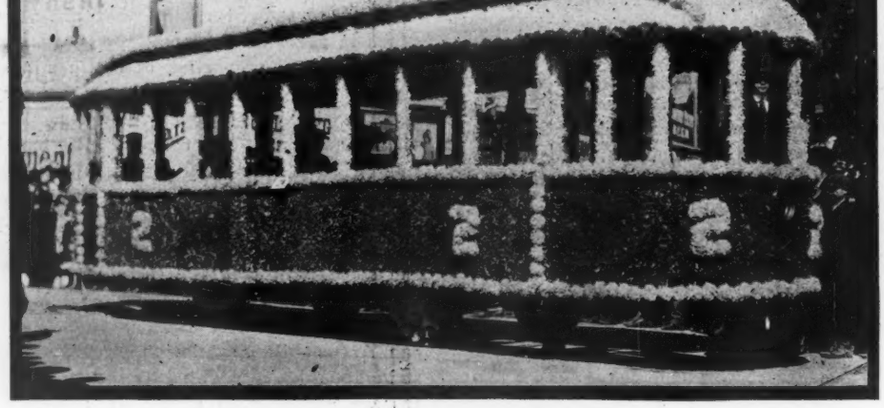
Ten-mile race for class B, division 5-B, open to gasoline cars of 451-600 displacement—Oldfield, Knox, won; Vredenburg, Stoddard-Dayton, second; Ellis, Jackson, third. Time, 9:59⅗.

Ten-mile race for class D, free-for-all, open to any gasoline car—Kerscher, Darracq, won; Hickox, Hudson, second; Wells, Moon, third. Time, 9:51.

Five-mile, for any gasoline car—Hughes, Falcar, won; Tower, Cutting, second; Cheney, Staver-Chicago, third. Time, 5:13⅗.

Australian pursuit race, open to all cars under 600 inches displacement—Hickox, Hudson, won.

Twenty miles, class E, open to chassis of any gasoline car in accordance with the definition of stripped stock chassis—Hughes, Falcar, won; Ellis, Jackson, second; Wells, Moon, third; Oldfield, Knox, fourth. Time, 20:03⅗.



At St. Joe—Selden Decorated as Trolley Car

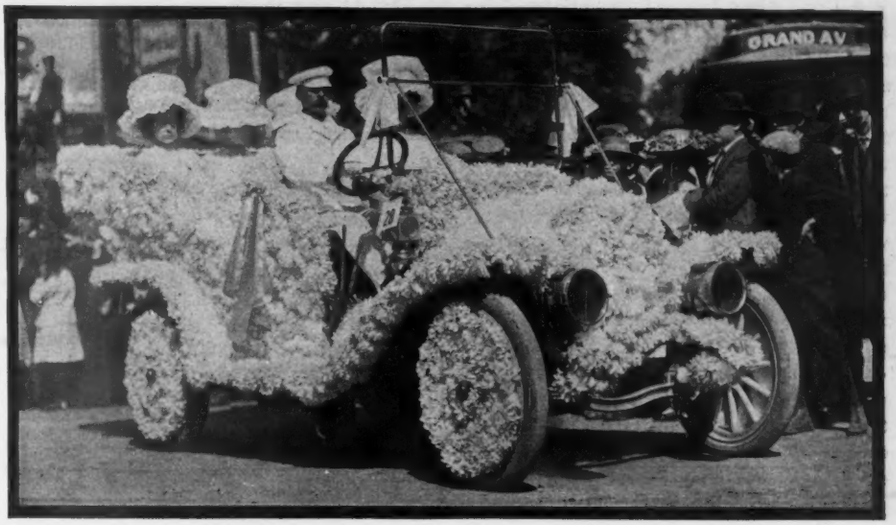
At St. Joe—Oldsmobile Entered by M. H. Reed, Winner of Fourth Prize

State Records Smashed

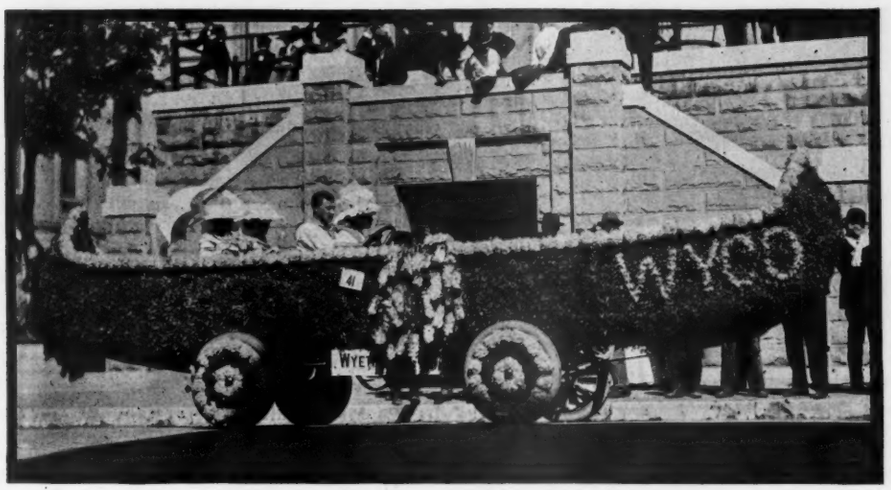
Springfield, Ill., Oct. 3—Kerscher and Oldfield each took a rap at records today at the Illinois state fair and each reached the mark for a mile on a circular dirt track so far as Illinois is concerned. Oldfield made a mile in :54, breaking the mark by 4-5 second, and Kerscher came back and reduced the figure another second, placing it at :53. Heavy rains this afternoon and tonight put races tomorrow out of the question.

DAY AND NIGHT PARADES AT ST. JOE, MO.

ST. JOSEPH, MO., Oct. 1—In connection with the state fair there was held Wednesday of this week a monster floral demonstration consisting of two parades, one of which was held in the morning and the other at night. The affair was handled by the St. Joseph Floral Parade Association, of which W. F. Maxwell was chairman, which distributed more than $2,400 in cash prizes and twelve cups valued at $7.50. Sixty cars participated in the affair and the first prize, $500 and a silver cup, was awarded to Ernest Mueller, who drove a Stoddard-Dayton, which was decorated in poinsettias. Second prize was captured by Mrs. GQuy Hall, while third went to E. M. Lindsay. In all nineteen cash prizes were awarded to the owners. J. H. Van Brunt captured the prize for the car with the most unique decorations. His idea consisted of a trolley car done in flowers, which is something original in the decoration line. In the trade section, the Wyeth Automobile and Supply Co. was awarded first prize, its design being a canoe.



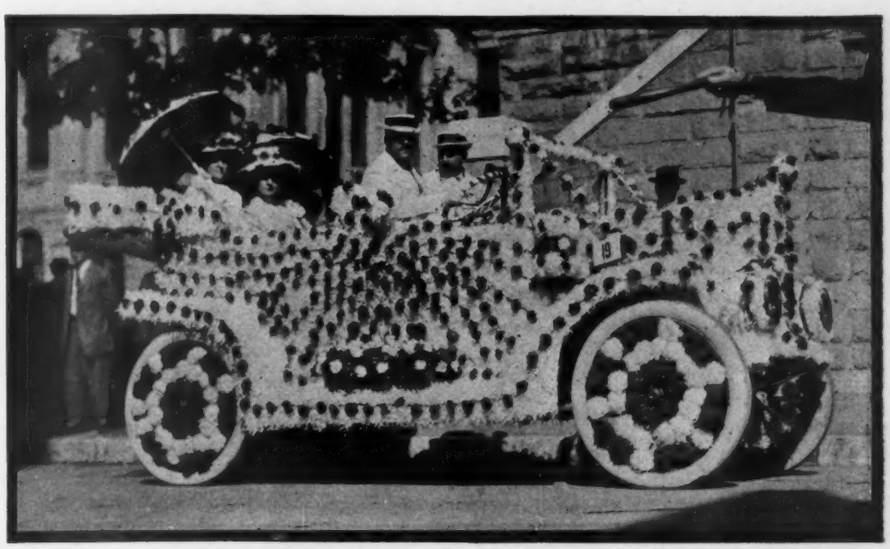
AT ST. JOE—E-M-F DRIVEN BY J. VAN DYKE, OF ATCHISON, KAS., A PRIZE WINNER



AT ST. JOE—WINNER OF FIRST PRIZE IN ADVERTISING SECTION

SITUATION IN DUBUQUE

Dubuque, Ia., Oct. 3—The motor car situation in Dubuque is a most peculiar one. This will be readily seen when it is understood that the city has a population of almost 40,000, and that there are fewer than 100 machines in the city. There are two good reasons for the fact that there are so few machines, compared with the population. The first is that the roads and streets in and immediately surrounding the city are extremely hilly, making it difficult to attain sufficient speed to make it interesting, while much of the road bed is constructed of coarse macadam or broken stone, which wears tires at a rate that makes of motor cars an expensive luxury. The second reason is the proximity of the Mississippi river and the opportunity it offers for motor boating during the boating season. Dubuque has the largest motor boat club in the country, and while a few own both cars and motor boats, many can afford the luxury and expense of but one, so content themselves with the motor boat. The Dubuque Automobile Club has a membership of but forty-three, while there are about fifty owners who do not belong to the club. However, the club was organized only a few weeks ago, and is gaining in membership fast and probably will have nearly all of the owners in before next spring. Much interest has been aroused here recently by the proposed river-to-river road from this city to Sioux City, via Waterloo. Sioux City motorists recently made a trip here from Sioux City in 2 days and state that they found excellent roads and conditions such that they can be made much better. They stirred up interest along the entire line, with the result that a meeting of those interested in the river-to-river project will meet at Waterloo during the present week, along with the Iowa League of Municipalities, and probably will perfect an organization and formulate definite plans about the construction of a permanent river-to-river road unsurpassed in the country.



AT ST. JOE—STANLEY STEAMER. DRIVEN BY BEN TRUNK, WINNER OF FIFTH PRIZE

MANY PERFECT SCORES IN TRIBUNE CUP RUN

The conclusion of the Minneapolis run shows the following with perfect road scores: Corbin, Chalmers, Franklin, Halladay, Staver, E-M-F, Regal, Henry, Abbott-Detroit, two Fords and a Maxwell. The technical committee has not yet reported.

MINNEAPOLIS, MINN., Sept. 30—Shortly after 7 o'clock this morning, the forty-two cars in the Tribune reliability run left Minneapolis for the hard road contest to Aberdeen, S. D., and return. Twenty-one cars were entered in the contest and the others accompanied them simply as non-contestants, but all were equally enthusiastic, and with bright weather and good road conditions, all anticipated a pleasant trip. Litchfield, the noon control, was reached without a single mishap, the cars almost an hour ahead of schedule and no penalties. The Paterson was in the lead.

At Morris, Minn., the night control for the first day, a rousing reception was accorded by the Morris citizens. Members of the motor club escorted them from a point about 5 miles in the country and a reception committee was on hand to greet them upon their arrival at the hotel La Grande. The promise made earlier by the Morris men to provide a duck dinner was literally kept, more than 100 birds having been secured for the occasion. But one unfortunate incident occurred to mar the sport. At a point several miles before Litchfield had been reached, boards with nails had been laid across the path and, as a result, several punctures were suffered.

In order to avoid running into a team, C. P. Davison, driving the Paterson entrant, ran his car into the ditch, but luckily escaped injury either to the machine or to the occupants. While a small penalty was inflicted, this in no way detracted from his car's performance.

Scores, generally, still remain good. The Alco driven by M. R. Nyman, narrowly escaped colliding with a team, which suddenly came around an obscure corner. The car was running up the opposite bank and, in avoiding the oncoming team, the engine was stopped. Otherwise, no penalties have been charged to this car. The first car to suffer tire trouble was the Staver-Chicago, driven by Troy Duis. This was about 22 miles out of Minneapolis. A blowout and a puncture caused this entrant to fall back a few miles, but the gap was quickly closed.

Driver Butterfield, of the Chalmers 40 forgot to oil his car at the noon control and was obliged to do so a short time after, thereby sustaining a minor penalty. No trouble, however, resulted to the other Chalmers. The Regal and Pullman cars likewise reported no trouble.

Riding in the Owen, G. A. Will and C. B. Waddell have been afforded an excellent opportunity to judge roads. Those of Swift county, it is understood, rank up highest so far.

Neither of the Royal Automobile Co.'s entrants, the Abbott-Detroit and the Glide, suffered penalties the first day. Likewise, the Everitt and Corbin, entered by the MacArthur-Zollars Motor Co., finished with clean scores. Both Ford cars are making unusually strong bids for the trophy. The Winton press car lost the way, but recovered the route early and in this way kept its place in line. Five miles out of Hancock the Lozier pilot ran out of gasoline. Fully an hour was consumed in replenishing the tank. The starting crank of the Hudson came out early in the day, for which it was slightly penalized. E. B. Stimson, driving the Hupmobile, was obliged to adjust the carbureter, receiving a penalty of 2 points therefor.

The cars finishing the first day's run with perfect scores, according to unofficial announcement, are as follows: No. 1, Corbin; No. 3, Chalmers; No. 4, Pullman; No. 5, Glide; No. 6, Henry 40; No. 7, Abbott-Detroit; No. 8, Chalmers; No. 9, Staver-Chicago; No. 10, Everitt; No. 12, Ford; No. 13, Franklin; No. 14, E-M-F; No. 15, Ford; No. 20, Maxwell; No. 21, Maxwell. The contestants in the tour are:

No.	Car	Driver
1	Corbin	J. H. Zollars
2	Alco	
3	Chalmers	J. Butterfield
4	Pullman	
5	Chalmers	William Bolger
6	Henry 40	W. A. Wright
7	Abbott-Detroit	J. W. Smith
8	Glide	Fred Cassel
9	Staver-Chicago	A. P. Heaney
10	Everitt	Mat Miles
11	Regal	Milton Brice
12	Ford	A. A. Hanson
13	Franklin	C. S. Carris
14	E-M-F	S. Rothenberger
15	Ford	J. McDowell
16	Halladay	O. A. Palmund
17	Hudson	
18	Paterson	C. P. Davison
19	Hupmobile	E. B. Stimson
20	Maxwell	B. C. Stimson
21	Maxwell	

Run to Aberdeen

Minneapolis, Minn., Oct. 1—Every car that started out on the Tribune reliability run reached Aberdeen in excellent condition. Several of the machines met with minor difficulties, but penalties were few. Two of the Fords arrived ahead of schedule, but have not been penalized. Upon the arrival of the pacemaking Corbin car, in charge of Dr. Dutton, the reception committee of the Aberdeen Commercial Club began to meet the cars as fast as they came and turned the privileges of the city over to the visitors.

The afternoon run from Sisseton was marked by stretches of hard driving, followed by the best roads that had so far been encountered. At one section of the route, near old Fort Sisseton, there was a heavy bed of sand which materially hindered the progress of the lighter cars, but only one was held up. A Maxwell car, driven by E. B. Stimson, was put out of the running, due to an injured axle. This was due to lack of oil.

From Clear Lake, east of Briton, a beautiful stretch of road prevailed all the way into Aberdeen and the fastest time of the trip was made. Just before reaching Aberdeen several cars were crowding the pacemaker, which had gone 18 miles off the route. There was a heavy rise at Ariliwa Crossing and the pacer, suddenly slacking speed, caused the others also to apply the brakes. The second car stopped in the roadway and the third turned to one side, narrowly escaping a fall into the ditch. The Knox and Alco cars came together, with some damage to the Knox. It was repaired.

Trouble with a Farmer

When the Owen press car reached the hill at the head of Clear Lake it was opposed by the owner of land across which the route ran and had to take another than that prescribed by the pilot. It required the efforts of the crews of two other cars to subdue the irate land owner and gain passage, but the following cars were compelled to take the longer route.

Dr. Dutton, in the Corbin pilot, traveled an extra 16 miles to reach Aberdeen but covered the distance on time. Other cars also lost the route on account of the wind blowing away the confetti, and covered several miles more than the schedule. The Aberdeen took charge of the entertaining of the visitors and provided a smoker, lunch and dancing at the club rooms. At no place along the line was greater hospitality shown than at Morris, Minn. The Regal is credited as among those cars having a clean score so far.

Penalties and scores for the first 2 days: 1, Corbin, clean score; 2, Alco, stalling motor first day; 3, Chalmers, oiling out of control first day; 4, Pullman, broken spring, second day; 5, Chalmers 30, clean score; 6, Henry 40, clean score; 7, Abbott-Detroit, clean score; 8, Glide, clean score; 9, Staver-Chicago, clean score; 10, Everitt, clean score; 11, Regal, clean score; 12, Ford, clean score; 13, Franklin, clean score; 14, E-M-F, clean score; 15, Ford, clean score; 16, Halladay, road word, first day; 17, Hudson, losing starting crank first day; 18, Paterson, stopping motor first day; 19, Hupmobile, adjusting carbureter first day; 20, Maxwell, trouble with rear axle; 21, Maxwell, clean score.

Few Drop on Monday

Minneapolis, Minn., Oct. 3—With more than half of the cars entered in the Tribune trophy run keeping a perfect score, Montevideo, the night control, was reached at 5:45 p. m. today and the cars were packed in the Montevideo garage. All the route traversed during the day was marked by almost perfect roads, and there was little possibility of accidents. Only minor difficulties occurred to a few of the cars. The Winona press car, the Hupmobile, the Maxwell and the Regal were delayed slightly on account of tire

trouble. Perhaps the most difficulty was experienced by the Hupmobile, and it was found necessary to borrow the Paterson repair kit to complete repairs.

Montevideo surpassed all previous efforts in the matter of entertaining the contestants. A banquet was provided by the Commercial Club and a dance closed the evening.

Leaving Milbank at 2:30, the run of 68 miles to the night control was made in good time, and at every town passed a cordial welcome accorded by other towns was duplicated, the enthusiasm increasing as the run advanced. At Watson, Milan and Appleton many spectators were out to send the travelers on with good wishes.

At a rutty point in the road between Appleton and Milan, Walter Zinn, observer in one of the Ford cars, was thrown out. Beyond sustaining a severe wrench to his knee he escaped serious injury. A. A. Hanson, driving a Ford, reported that he had used up his first can of lubricating oil since leaving Minneapolis. Other evidences have been shown of economical running. The Everitt spoiled its chance for a clean record by breaking its fan belt. This means a penalty of 1 point. The Corbin is still credited with a perfect score, as are the Chalmers, Bluebird, Franklin, Halladay, Staver-Chicago, Regal, E-M-F, Abbott-Detroit, Henry, two Fords and Maxwell.

Tour Back in Minneapolis

Minneapolis, Minn., Oct. 4—With only one serious mishap on the morning run of 92 miles from Montevideo to Glencoe, the Tribune trophy motorists reached their noon control at 12 o'clock. The Hupmobile was badly damaged by having one front wheel strike a sharp ditch 8 miles from Glencoe, but was able to continue with but a small loss of time. The Paterson car was compelled to make a short stop on account of tire trouble, as also was the Halladay.

Through Renville county the tourists found perfect roads, and for 50 miles made fast time. There was considerable trouble occasioned on account of the heavy rain, and in many places it was necessary to run behind schedule time, which was especially true between Montevideo and Granite Falls, where there are many hills and narrow valleys. At Olivia confusion of roads was avoided by the business men of that city, who came out and directed the cars along the right course. This was a great help as the wind had blown away most of the confetti left by the pilot car. The cars were checked out of Montevideo at 7:30 and at once headed east for the trip. At each station residents gave assistance in directing the drivers, yet several times cars passed the turning point before finding the right road. The Pullman car traveled several miles out of its way. Several of the cars added to their list of casualties by running over chickens and one dog.

The afternoon run of about 60 miles began at 12:40, only a short stop having been made at Glencoe for dinner. Through Renville county for 55 miles, some of the finest roads on the entire tour were passed over. The tourists reached the club at Bloomington at 3 o'clock, where a buffet luncheon was served. From Bloomington into Minneapolis the cars filed in order of number, the pacemaker taking the lead. After parading through Minneapolis, the cars turned into the Pense garage, where they were turned over to the technical committee for final inspection.

The Corbin, Chalmers, Franklin, Halladay, Staver-Chicago, E-M-F, Regal, Henry, Abbott-Detroit, two Fords and a Maxwell are still credited with having perfect scores.

RACING AT KANSAS CITY

Kansas City, Mo., Oct. 5—A notable spectacle ended the first matinee of the 3-day carnival week motor and air meet in the Kansas City Automobile Dealers' Association at the Elm Ridge track yesterday afternoon. Inasmuch as last night was the night of the annual Priests of Pallas parade, it was presumed that few spectators would visit the races yesterday and the Metropolitan Street Railway Co. provided only a few extra Elm Ridge cars. The down town cars unloaded race fans by the hundreds at the transfer point at Forty-seventh and Troost avenue, however, and many persons passed up the races, wearying of waiting for track cars.

The Falcar, driven by Hughes, was the star of the afternoon, with Midland, No. 13, driven by W. Nutting, a close competitor. The Fal won two firsts and two seconds out of the four events in which it was entered. The time was 11:23. Midland, No. 14, had a big lead until the fifth lap, when a tire came loose. In its brief lead this Midland made the fastest lap of the afternoon, 1:04. Summaries:

Five-mile race—Phil Wells, Moon, won, time 5:45; Hughes, Falcar, second, time 5:51; Philips, Overland, third, time 6:04.

Ten-mile free-for-all for the Kansas City Star cup, to be run in three heats, Tuesday, Wednesday and Thursday—W. Nutting, Midland, won; time 11:23; Hughes, Falcar, second, time 12:07; Wells, Moon, third, time 12:08⅖.

Ten-mile race for the Remy cup—Nutting, Midland, won, time 12:21; Jackson second, time 12:27½; Auburn third, time 12:30.

Five-mile gentlemen's race for R. H. Collins cup—W. H. Gilmore, Apperson, won, time 5:35; T. A. Velle, Velle, second, time 6:00; Wells, Stearns, third, time 6:04.

Ten-mile open, stock chassis, for the Post cup—Hughes, Falcar, won, time 11:01; Donnelly, Cino, second, time 11:01; Nutting, Midland, third, time 11:01½.

Thirty-minute race, to be run each of 3 days, with car covering greatest mileage the winner, for the Journal cup; Hughes, Falcar, 28 miles; Stanfield, Jackson, 28 miles; Staver, 28 miles; Moon, 27 miles; Cino, 27 miles; Great Smith, 26 miles; Great Western, 24 miles; Midland, 24 miles; Auburn, 23 miles.

It is noteworthy that while the Kansas City Automobile Dealers' Association is holding the 3-day race meet, the Motor Car Trade Association of Kansas City is host at a show, a department of the Missouri valley fair and exposition at Electric park. As a paradox, the rival association intends to devote all the profits of the race meet to its fifth annual show next winter, February 27 to March 4.

FREIGHT RATES DISCUSSED

New York, Oct. 1—Traffic managers and men in charge of shipping and receiving departments of factories met at the offices of the National Association of Automobile Manufacturers, New York, Monday and Tuesday of this week, when the freight rate situation, as pertaining to motor cars and factory material and supplies was discussed in detail. The meeting was called by J. S. Marvin, general traffic manager of the national and licensed associations, and dealt particularly with matters pertaining to the official classification, which controls freight rates east of the Mississippi river and north of the Ohio river, the official classification committee also being in session in New York at this time. Mr. Marvin presided at the conferences, and specifications considered vital by railroads in fixing freight rates were submitted by the various factory representatives in relation to engine and gear parts, hoods, windshields, seats, flanges, bodies, and various other items in which the industry is interested, and which the railroads and on their docket.

Coming Motor Events

October 7-8—Track meet at Santa Ana, Calif.
October 8—Fairmount Park road race, Philadelphia, Pa.
October 8—Track meet of Danbury Agricultural Society, Danbury, Conn.
October 8—Races at Interstate fair, Spokane, Wash.
October 10-12—Three-day track meet on 2½-mile dirt speedway, Amarillo, Texas, Panhandle Auto Fair Association.
October 10-15—Reliability run, Wichita, Kas.
October 10-15—Vehicle show in Coliseum, Chicago.
Oct. 14-15—Track meet, Sioux City, Ia.
Oct. 15—Grand Prix road race, Long Island, N. Y.
October 13-14—Track meet of El Paso Journal, El Paso, Tex.
October 21-25—Washington-Richmond reliability of Washington Post.
October 15-November 2—Show in Paris promoted by Aeronautical Society.
October 17—Nine-day good roads tour of the Atlantic Constitution.
October 21-22—Commercial vehicle test of Boston American.
October 27-28-29—Track meet at Dallas, Tex., of Dallas Automobile Club.
October 28-29—Commercial vehicle tests of New York American and Chicago American.
October 29-30—Reliability run in New Jersey, of Automobile Club of Hudson County.
November 3, 4 and 5—Race meet of Atlanta Automobile Association, Atlanta speedway.
November 5-6—Track meet at New Orleans, La.
November 5-7—Los Angeles-Phoenix road race of Maricopa Automobile Club.
November 7—Track meet of Maricopa Automobile Club, Phoenix, Arizona.
November 10-12-13—Track meet at San Antonio, Tex.
November 7-11—Five-day reliability run of Chicago Motor Club, 200 miles a day.
November 24—Santa Monica road race, Los Angeles, Cal.
November 26-27—Motordrome meet, Los Angeles, Calif.
December 1-8—First annual aeronautical exhibition, Chicago Coliseum.
December 3-18—Annual salon of Automobile Club of France.
December 25-26—Motordrome meet, Los Angeles, Calif.

National Roads Meeting Interesting

ST. LOUIS, Mo., Oct. 1—Nearly 400 delegates, from two-thirds of the states in the union, attended the third annual good roads convention at the New Coliseum Wednesday, Thursday and Friday. Officers and delegates pronounced the gathering the most successful of good roads meetings. Atlanta, Ga., was selected as the next convention city.

The delegates were welcomed at the opening session by Governor Herbert S. Hadley, of Missouri. "In no particular have the American people more clearly demonstrated their reckless indifference to that which affects most vitally their property and welfare than in their failure to build good roads," the governor declared. He pledged himself to the good roads movement and promised to use his official influence in aid of increased appropriations from both the state and federal governments.

The annual banquet was held Wednesday night, instead of Friday, as originally planned, in order to allow Lewis B. Speare, president of the American Automobile Association, to attend.

"When the man from Connecticut knows the man from Kansas as 'Jack,' and the gentleman from Mississippi knows the member from Missouri as 'Harry,' and all feel like writing each other about the various questions that come up in road-making, then the work is three-fourths done," declared Robert P. Hooper, first vice-president of the American Automobile Association, at the banquet. The other speakers were Joe Busse, St. Louis; George H. Carter, Marlin, Tex.; Sam D. Capen, president of the Automobile Club of St. Louis; George C. Diehl, presiding officer of the organization; A. G. Batchelder, chairman A. A. A. executive committee, New York; L. W. Page, Washington, D. C.; G. Z. Ladd, of the National Grange Association, and Charles F. Hidden, vice-president of the St. Louis Automobile Association.

The official program at the first day's session was not followed. Charles D. Ross, of Newton, Mass., advocated legislation giving the motor car the middle of the road, with horse-drawn vehicles at either side. "Every main road should by law be made a three-division road," he said. "The traffic must be divided into three parts. The motor car should have the center, teams traveling in one direction should be on the motorist's left and those going in the opposite direction should be on his right." Wagons should be required to show lights when on the roads at night, he said.

A course of instruction in the public schools relative to the danger of children playing or walking in roads was advocated. "Convict Labor in Public Road Construction" was the title of a paper read by Joseph Hyde Pratt, state geologist of North Carolina. Major W. W. Crosby, of Baltimore, talked on "Modern Road Construction."

At the second day's session Prof. Arthur H. Blanchard, of Brown university, attacked the American system of permitting city or county engineers to lay out and build roads and then to leave their care in the hands of a different set of officials.

George R. Carter, of Marlin, Tex., told how the commercial bodies of that state organize tours of troupes consisting of six or more motor cars, carrying a complete moving picture show with thousands of feet of films, to be used to demonstrate the benefits to be secured by good roads. Harold Parker, chairman of the Massachusetts highway commission, criticised the system of supervising road-building in his paper on "State Roads to Meet Modern Traffic Conditions." The list of papers read before the convention the second day included "High Altitude Roads," by F. L. Bartlett, Denver; "Treatment of Earth Roads," by D. Ward King, Jefferson City, Mo.; "Across Missouri Highways," Curtiss Hill, state highway commissioner of Missouri, and "Crest of Blue Ridge Highway," Joseph Hyde Pratt, Chapel Hill, N. C.

At the closing session the convention passed resolutions condemning poll-tax road labor and asking state legislatures to repeal all such statutes, so that hereafter all highway taxes be paid in cash. All states not at present maintaining a highway commission were asked to appoint such a body at the next session of the legislature. The convention placed itself on record as favoring the recent good roads bill presented for passage in the Missouri legislature. All rubber-tired vehicles, it was recommended, should carry lights from ½ hour after sundown to ½ hour before sunrise. Motorists were requested to use extreme care on the roads.

This national convention committee was selected as follows: George C. Diehl, Buffalo, N. Y., chairman A. A. A. good roads board; N. J. Bachelder, Concord, N. H., master National Grange; Charles S. Barrett, Union City, Ga., president Farmers' Union and Coöperative Association; Logan Waller Page, Washington, D. C., director United States office of public roads; L. H. Kittredge, Cleveland, president National Association of Automobile Manufacturers; R. D. Chapin, Detroit, chairman N. A. A. M. good roads committee; Alfred Reeves, New York City, general manager Association of Licensed Automobile Manufacturers; Harold Parker, Boston, state highway commissioner of Massachusetts; Fred Atwater, Bridgeport, Conn., president League of American Wheelmen; C. J. Butler, Detroit, Motor and Accessory Manufacturers; S. Percy Hooker, Albany, N. Y., state highway commissioner of New York; Lewis R. Speare, Boston, president American Automobile Association; Robert P. Hooper, Philadelphia, vice-president American Automobile Association; A. G. Batchelder, New York, chairman A. A. A. executive committee; Charles Thaddeus Terry, New York, chairman A. A. A. legislative committee.

After adjournment the delegates were taken in special trolley cars over the residence districts and then to the Annheuser-Busch brewery. Thursday afternoon was spent in a boat excursion on the Mississippi.

Although not extensive, the exhibits at the Coliseum during the convention were of considerable interest. In addition to several types of the latest improved road-making machinery and road-making materials, several motor cars were on view. The Overland Motor Car Co. of St. Louis showed 1911 models, the Lindsay Motor Car Co. exhibited Premier and Inter-State new models, and Randolph commercial vehicles were seen.

MORE SIGNBOARD WORK

Grand Rapids, Mich., Oct. 1—September witnessed the close of the signboard campaign which has been conducted by the Michigan State Automobile Association. During the spring months Dr. F. C. Warnshuis, of Grand Rapids, secretary of the

SYRACUSE SOCIABILITY RUN— ALONG SHORE OF SKANEALETES LAKE

association, started to raise a fund among the manufacturers of the state and was successful in raising some $1,300 to carry on the work. A route car was started out over the principal highways of the state and the necessary details, mileage and other information was obtained. With the mileage for each signboard figured out, 687 signs were put up. In addition there were sixty-eight railroad crossing signs and fifty-four danger signs. These signs were erected on 10-foot angle iron poles set in 3 feet of concrete. The following routes have been signboarded:

Grand Rapids to Holland, Grand Rapids to Detroit, Detroit to Saginaw, Detroit to South Bend, where the signboard route of the Chicago Motor Club is met. With the new signs it is impossible for the tourist to lose his way. A Grand Rapids tourist can go to Chicago over a route entirely equipped with signboards. The state association also has been the means of securing the Automobile Blue Book route crew and car, which is now routing the northern part of the state and getting data for direct routes to the northern resorts. These routes will be published in the 1911 Blue Book and it is the intention of the state association to signboard them next spring.

FRENCH TEST ABANDONED

Paris, Sept. 26—For lack of sufficient entries there will be no reliability trials in France this year. When the final date arrived for closing the lists only thirteen cars had been received, the makes represented being Alcyon, Gregoire, Barré, Hurtu, Reyrol and Buchet. The test was intended to be a purely commercial event for cars of not more than 3.1 inches bore for four cylinders. They had to have at least two occupied seats and be completely fitted for touring. About 2,000 miles had to be covered with bonnets sealed and without an involuntary stop of the motor. In addition to a general disinclination among French makers to take part in any competition there was a feeling that conditions were too severe and left too much to chance.

Lawless Wins Another Sociability

SYRACUSE, N. Y., Oct. 3—That Dr. A. T. Lawless is a motor wizard was pretty definitely settled here Saturday, when it turned out that he had come within 8 fleeting seconds of the secret time established for the Syracuse Herald's annual sociability run and therefore was entitled to the first prize. Where the wizardry comes in is that Dr. Lawless, who drives a Maxwell car, was the winner on July 20 of the run conducted by the Automobile Club of Syracuse. This run, which was to Renwick Falls and return, held a secret time which was figured upon the safe and sane running time based upon the new state law, with varying rates of speed in town and countryside, and upon that occasion Dr. Lawless was only a trifle over a minute over the secret time. For the Herald run Saturday it was but 8 seconds.

Dr. Lawless wins permanently the Herald silver trophy, his time being 4:03:02. The secret time was 4:03:10. Frank J. Steak won the second prize, the Syracuse Automobile Dealers' Association silver trophy, his time being 4:04:05. The third prize, a gold medal presented by the Herald, went to E. B. Cross, whose time was 4:04:08, and the fourth, a Herald silver medal, to Emmet Brennan, who made the scheduled 74 miles of the run in 4:05:57.

There were many women drivers on the run, and for these special prizes had been offered. A silver trophy donated by the Automobile Club of Syracuse went to Mrs. George Hessler, in a Franklin, her time being 4:28:18. A gold medal went to Miss Florence McDonald, whose Regal car covered the course in 4:30:15, while Miss Pearl Cheshire won a silver medal, whose Ford car negotiated it in 4:31:10. The half-page of advertising space in the Herald offered as a special prize to the Syracuse dealer represented in the run by the largest number of cars, went to Strait & Shaw, that firm having twelve Buicks in line.

Of the prize winners above mentioned, Frank J. Steak drove an Oldsmobile, E. B. Cross a Ford, and Emmet Brennan a Brennan. There were eighty-three cars in line, representing an estimated value of well over $200,000.

The weather was ideal for the run save for a strong wind from the north that rendered it rather too chilly for absolutely perfect comfort. It was clear and sunny, however, and there were magnificent stretches of state road for most of the distance, rendering driving a pleasure, while for scenic beauties, there is not a route in the famous central New York or in the country that abounds more in them.

The route selected for the run lay from the Herald office to Camillus, thence to Auburn, along a beautiful stretch of state road that had been thoroughly oiled. At Auburn the cars checked in, though the wait was invariably only of a few minutes, for the arrangements were for a continuous run with dinner where they pleased upon the return to Syracuse. Upon leaving Auburn the cars proceeded to skirt the shore of Owasco lake to the village of that name. Then they climbed the dreaded Niles hill and proceeded to the end of Skaneateles lake, coming to Skaneateles upon a magnificent state road and proceeding from there back to Syracuse.

There were over 300 people in the cars. Preceding the contesting cars, the Moyer pilot car, the Peerless pathfinder, the Chalmers press car and the official Haynes car were sent away. The pathfinder car contained Mayor Edward Schoeneck, just nominated by the Republicans at Saratoga for lieutenant-governor.

CANADIAN RECORDS GO

Winnipeg, Can., Sept. 28—On the Kirkfield track here Saturday, Canadian speed marks went flying when the fourth annual meet of the Winnipeg Automobile Club was held. The mile record, which is the first official mile record to be set in Canada for a mile track, was put at :59⅕ by W. C. Power in a McLaughlin-Buick. The same driver with the same car afterward covered several miles at the rate of :58 while winning the Dunlop trophy race of 25 miles. In this long-distance event there were eight entries, but in spite of the fact that he was kept constantly on the outside of the track, lapping and passing the other contestants, Power covered the course in 25:19. Summaries:

Free-for-all, 25 miles, Dunlop trophy—W. C. Power, McLaughlin-Buick, won, time 25:19; W. Guest, National, second, time 26:24; also started A. Moore, Kisselkar; R. Husk, Knox; Harn, Maytag, and Houghton, Knox.

One-mile time trials—W. C. Power, McLaughlin-Buick, time :59⅕; W. Guest, National, time 1:01⅘; R. Husk, Knox, time 1:03.

Five miles, 160 and under class—Harn, Maytag, won, time 6:25; Cline, McLaughlin-Buick, second.

Ten miles, 161-230 class—D. A. Brown, Warren-Detroit, won, time 12:40; Cline, McLaughlin-Buick, second; Harn, Maytag, third.

Ten miles, 231-300 class—W. Guest, McLaughlin-Buick, won, time 11:19; J. Brown, Warren-Detroit, second; Houghton, Knox, third.

SYRACUSE SOCIABILITY RUN—STATE ROAD BETWEEN AUBURN AND OWASCO

Gossip of Motor Trade in Detroit

DETROIT, MICH., Oct. 3—Active operations began this morning at the mammoth new plant of the Ford Motor Co., covering 60 acres in Highland Park, just north of this city. Nearly all of the 4,500 men laid off a week ago, pending inventory, reported for duty and before the end of the week a good start will have been made on the 1911 output. The Ford company formally closed its 1910 season last Friday night. For the present at least the company's old plant at Piquette avenue and Beaubien street will continue in operation, but from now on the greater part of the output will come from the new factory. There are facilities here for turning out 240 cars per day.

The Highland Park plant represents a total investment of $2,500,000. The main building is one of the largest factory structures in the world and a model of its kind, particularly in its lighting and ventilation features. It is 860 feet long, 75 feet wide and four stories high. It is of reinforced concrete construction and is equipped throughout with wrought-steel Fenestra window sash. Scattered over the 60 acres are several smaller structures. The work is not entirely completed, but a large force of men are putting on the finishing touches as rapidly as possible. An important feature of this industrial group is an 860-foot craneway, with a 57-foot traveling crane, directly back of the main building. Under this craneway all raw material will be stored. Until the plant is completed the heat treatment, transmission, stamping and housing departments will continue in operation at the old plant, about 400 men being employed.

Rush New Plants

With the approach of cold weather, work on all the new motor car factories that have been in process of erection since early in the summer is being pushed with vigor and the work of moving in will be undertaken very shortly. The foundations of the United States Motor Co.'s office building and garage at Woodward and Charlotte avenues, work on which was so long delayed for reasons not made public, are now practically all in, while great headway is being made at the big new plant of the Alden Sampson company in the northwest section.

The laying of rails for the extension of the outer belt lines, known as the Detroit Terminal Railway, through Greenfield township, to connect with the Pere Marquette, was begun Friday. This will open up a vast new territory for industrial expansion. The Metzger Motor Car Co. already is located in this section and the company has under consideration the erection of a mammoth plant for the manufacture of motor trucks in the immediate vicinity, as previously announced.

The Hale Motor and Machine Co. is erecting a new plant on Franklin street, near Chene, which will be ready for occupancy by December 1. It is 194 feet by 64 feet and of mill construction.

James H. Christian and Hiram B. Sackett are the principal stockholders in the Rapp Motor Co., which has just been organized to manufacture motors for launches and motor cars. The business will be located in this city. The Edmunds & Jones Mfg. Co., maker of electric, acetylene and gas lamps for motor cars, has doubled its capital stock and will increase its force of employes from 300 to 450 men as soon as it can build a three-story addition to its plant. A new power plant also will be added.

Making Special Machinery

The Acme Machine Tool Co., 97-99 Wayne street, has been succeeded by the Brady-Nagel Mfg. Co., which will make parts and special machinery and will do all kinds of machine work. James J. Brady, formerly vice-president and general superintendent of the Chalmers Motor Co., is president. George Henderson, who has been associated with the Frontier Iron Works and the Detroit Shipbuilding Co. and more recently with the Chalmers company as a department superintendent, is vice-president and superintendent, and Former Deputy City Controller William J. Nagel is secretary and treasurer. One other, a man who is prominently identified with one of Detroit's largest motor car concerns, is largely interested in the new company, but his name will not be made public for the present.

Local engineers are greatly interested in a rotary engine that has been invented by Frank J. Miner, of this city. It is a distinct departure and, if it proves a success, is likely to become an important factor in the motor car industry by greatly reducing the cost of production. The inventor is now working on its application to gasoline power. The Rotary Engine Co. already has been organized to manufacture the engine and an office has been opened at 519 Ford building. Mr. Miner has secured a basic patent on his invention.

The unique spectacle of a firm of horse dealers holding an auction sale of motor cars will be presented October 6. The Kolb-Gotfredson Horse Co. has accumulated quite a collection of used touring cars, electrics and runabouts of nearly all the leading makes, which will be knocked down to the highest bidders.

More Signboard Work

The executive committee of the Michigan State Automobile Association met Friday, in the office of President E. A. Skae, in this city, to review the work of the past summer and lay out new work. The association has sign-boarded routes from Detroit to Grand Rapids, Detroit to South Bend and from Grand Rapids to Macatawa Park, and this fall the Detroit to Saginaw route will be marked. Reports submitted by the officers showed the association to be in a prosperous condition. The next meeting will be held in Grand Rapids some time before the first of the year.

New members are being admitted to the Wolverine Automobile Club, Detroit's newest organization of motorists, at a rapid rate. There are more than 300 names now on the roll and an active campaign is going forward to increase the membership to 1,000 before January 1. The officers are now in search of a location for a club house.

Edwin R. Potts, one of the large stockholders in the Swift Automobile Co., has filed a petition in the Wayne county circuit court asking for the appointment of a receiver for the concern. He alleges that the present directors and others identified with the administration of the company's affairs are incompetent. The company now has a plant building in Wayne, Mich. It is incorporated for $300,000. There are several judgments against the company, Potts says, for work done on the new building, and this he charges to mismanagement, for he claims there are plenty of assets in sight.

A statement to the effect that Dr. E. R. Campbell, son-in-law of W. C. Durant, has been appointed general sales manager of the Buick Motor Co. in place of H. E. Shiland is denied. Mr. Shiland has not made any change and continues as sales manager for the Buick.

Charles Adams, formerly superintendent of the E-M-F company's Port Huron branch, has been promoted to be production manager of all the E-M-F factories. He will have his headquarters in Detroit and will move his family here.

The local branch of Hayden, Stone & Co., Boston brokers, has been advised that directors of the General Motors Co. have decided to pass the regular dividend on preferred stock pending the completion of negotiations with eastern financial interests. It is declared, however, that the dividend will be paid some time before December 1. The earnings are reported to have been $8,500,000 for 1909 and are estimated at $10,000,000 for 1910. General Motors stock has taken a brace in the local market and is now showing a steady advance.

RUBBER FACTORY IN TEXAS

Marathon, Tex., Oct. 1—It is reported that the Diamond Rubber Co. of New York, which recently obtained a permit from the secretary of state of Texas to do business in this state, will erect a large factory in this section for the manufacture of crude rubber from the guayule shrub. The company stated in its application to the secretary of state that it will establish offices at Houston and Dallas. Representatives of rubber manufacturing interests have been busy in this part of the state for some time purchasing the guayule shrub that is growing upon ranch lands. They have bought up a sufficient tonnage of the shrub to keep a

large factory in operation for 3 or 4 years, it is stated. It is planned to grow the shrub extensively and to provide in that manner a continuous supply of the raw material.

The rubber factory of the Texas Rubber Co. at Marathon is running day and night and is turning out large quantities of crude rubber. The produce is shipped to New York, where it is refined. It has a large supply of guayule shrub on hand and is constantly contracting for additional tonnage. The sale of the shrub is proving so profitable to the ranchmen of this region that some of them are arranging to go into the business of growing guayule on a large scale. It is found that the seeds are so small and light that it is practically impossible to gather them. The propagation therefore is conducted by preparing the ground around the growing shrubs, and when the seeds mature the bushes are shaken and the seeds scattered over a considerable area of ground. The plants soon spring up, and reach a commercial size in 3 to 4 years.

In their present wild state of growth the guayule shrubs frequently give a yield of ¾ to 2 tons per acre, although the average yield is about ½ ton per acre. In view of the fact that it is at present selling for about $200 per ton, and that it grows upon the poorest kind of ground, that is unfit for cattle-grazing or other purposes, the land owners of this part of the state see great possibilities in the new industry. It is claimed that where systematic attention and proper care are given to propagating the shrub an average yield of not less than 2 tons per acre, with a cutting once every 3 years, should be obtained. The permanency of the new industry is believed to be assured. The demand for rubber for the manufacture of motor car tires and other uses is constantly increasing, and the manufacturers of the crude product from the guayule shrub say that there is no prospect of any reduction in prices.

The land around Marathon where the guayule shrub grows in its wild state was of little market value before the discovery was made that the desert growth could be put to profitable commercial use. In some localities land which is now producing ½ ton of guayule per acre, valued at $100, could have been purchased 5 years ago for 75 cents per acre.

GETS SOUTHERN ROAD RECORD

Savannah, Ga., Oct. 1—Trying to beat the record of 13 hours between Savannah and Jacksonville, Herbert B. Race, of Jacksonville, Fla., in a Ford, left that city on Saturday morning last at 5 a. m. and arrived in the city limits of Savannah at 5 minutes past 3, breaking the record by 3 hours and winning the cup that had been promised by the Savannah Automobile Club for the car that made the best time between the two cities. Race's time was 10 hours 5 minutes. The cup will be

Rubber in the Palo Amarillo Tree

GUANAJUATO, Mexico, Oct. 1—Another practical and very extensive source of crude rubber supply was recently discovered in this part of Mexico. It is the palo amarillo tree, which grows wild in a broad scope of territory bordering the Pacific coast and extending towards the interior as far as Guanajuato. The commercial possibilities of this tree as a producer of rubber have been thoroughly tested by the Mexican government and by representatives of large American interests that are investing considerable capital in the new industry.

New Company Formed

The first plant to manufacture crude rubber from the milky sap of the palo amarillo tree was recently established at Empalme de Gonzalez, state of Guanajuato, by the Palo Amarillo Mexican Crude Rubber Co. David E. Thompson, of Lincoln, Neb., former United States ambassador to Mexico, is president of this company. One of the principal stockholders is General Felix Diaz, nephew of President Diaz. Carlos Landa y Escandon, governor of the Federal district, is also a large stockholder in the company.

The palo amarillo tree bears no resemblance to the guayule shrub, from which large quantities of rubber are being manufactured in northern Mexico and southwestern Texas. This tree also is of a different species from the rubber tree of the tropical regions of Mexico and other countries. It attains a height of about 30 feet. Its trunk gets to be of a thickness of 1 to 2 feet. The tree is of rapid growth, reaching a commercial size in 5 years. It is tapped in a manner similar to that of the rubber tree and produces a large flow of caoutchouc fluid at each tapping. It is stated that the tree will stand several years' constant production without being injured. The fluid contains an average of 10 per cent of rubber and 25 to 40 per cent of resin, the latter product being of value for various purposes.

Daily Output of 2 Tons

The plant of the Palo Amarillo Mexican Crude Rubber Co. which is now in operation at Empalme de Gonzalez has a daily output of 2 tons of crude rubber. This rubber sells at present for about $1,000 gold per ton. The cost of manufacturing the rubber, including the expense of tapping the trees and gathering the sap, averages about $350 gold per ton. The company recently received from the United States the machinery for five more coagulating plants. Four of these will be erected in the state of Guanajuato and the other one at Zamora, state of Michoacan. Additional plants will be erected by the company from time to time as it increases its holdings of palo amarillo trees. It is a close corporation and has made no public announcement of its plans.

The news that the palo amarillo tree is being utilized for the manufacture of crude rubber has caused a number of independent concerns to enter the new field of industry, to the extent that they are actively purchasing all the available tracts of trees in the territory that has not been invaded by the pioneer company. It is expected that a number of independent rubber manufacturing plants will be established during the next few months, and that it will not be a great while until the palo amarillo industry will rival that of guayule rubber, in which more than $65,000,000 gold has been invested during the last few years.

The experiments which led to the discovery that the palo amarillo tree contained caoutchouc properties were made by chemists under the direction of the National Medical Institute of the City of Mexico. Dr. Henry H. Rusby, dean of the college of pharmacy of Columbia university, also made three trips to Mexico for the purpose of investigating the tree and analyzing its product. The patent for the process by which the milky fluid of the palo amarillo tree is coagulated and converted into crude rubber is held by James M. Saunders, a chemical expert of the Mexican government.

Grade of Rubber Good

The grade of the rubber that is manufactured from this tree is said to be equal to that of the Para tree product. The output of the factory that is now in operation at Empalme de Gonzalez is shipped direct to New York, where it is put through the refining process.

BLOOMINGTON HAS A TEST

Bloomington, Ill., Oct. 1—Three perfect scores were made in the reliability run of the Bloomington Automobile Club held Thursday morning and afternoon. Twelve cars started and at the finish only the trio of drivers—J. L. Murray, Buick; Orlo Price, Warren-Detroit, and Harry Arnold, Rambler—were found to have made the 150-mile trip without a penalty being inflicted on their cars. The start was made at 7 o'clock in the morning, dinner was taken at Pekin, 54 miles distant, and Bloomington was reached by the pilot car at 5 o'clock. The following towns were passed through in the course of the trip: Danvers, Mackinaw, Tremont, Pekin, Morton, Eureka, Deer Creek, El Paso, Pontiac, Chenoa, Towanda, Lexington and Normal.

Arnold arrived 4 minutes late in Bloomington, but his score was not affected by the delay, he having been held back by the pilot car and the lateness excused for this reason. Others competing in the run were Earl Burke, Kissel; Clarence Harvey, Ford; Julius Funk, Locomobile; E. W. Mammen, Haynes; J. G. Sessley, Kissel; T. A. Harper, Ford; L. J. Schultz, Buick, and Frank Hackett, Buick.

So enjoyable was the run that the Bloomington Automobile Club is fully determined to hold more of them in the future.

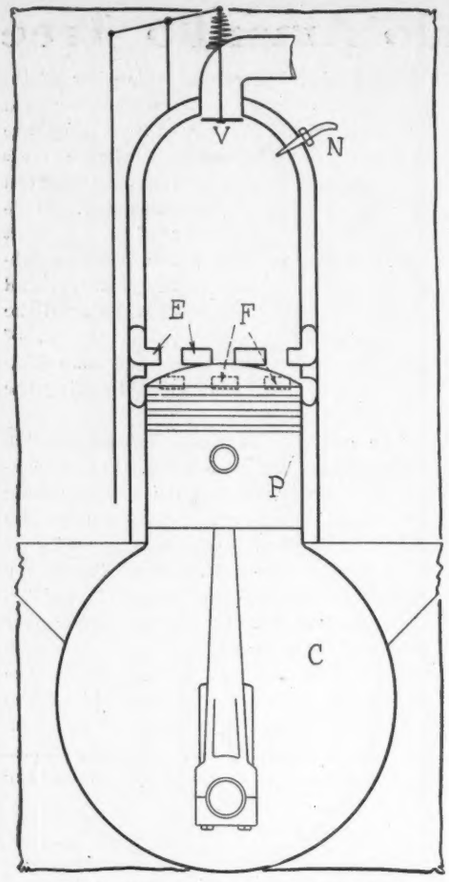


FIG. 1—INJECTION TWO-CYCLE MOTOR

LOOK AT SPARK-PLUG POINTS

MAGNOLIA, Ill.—Editor Motor Age—Will Motor Age inform me, through the Clearing House columns, what is the cause of a magneto sending a weaker spark to the second cylinder of my Maxwell 30 than to the remaining three cylinders? The ignition system is that of the Maxwell regular equipment, Splitdorf dual system. When the engine is running on the battery the sparks are all of equal strength, but when it is switched to the magneto the second cylinder spark almost quits. I have rewired the high-tension part, but it made no change. I also would like to know if the walls of a cylinder ever become so badly carbonized that the compression is very poor, even though the valves have been ground perfectly. If that is the cause of poor compression, how can I remove the carbon with the least trouble.—Ralph French.

The only plausible cause for your trouble is that the points of the spark plug in the second cylinder are too far apart, so that at slow engine speeds the current generated by the magneto is not sufficiently strong to develop as hot a spark as the battery system. The walls of the cylinder of a motor very rarely become at all carbonized, but if you mean the walls of the combustion chamber the greater the deposit of carbon the smaller would be the size of the combustion chamber and the greater the compression. Therefore, carbonization of the combustion-chamber walls would not cause a loss of compression. If, however, there are particles of carbon which become loose and are caught between the valve and its seat, you would get poor compression from this source. It also might be suggested that since you had the valves ground recently it is possible that there is not sufficient space between the ends of the valve stems and the push rod; you should be able to slide a business card between the end of the stem and the push rod when the valve is closed. It might even be advisable to have this space sufficient to allow a double thickness of the card to slide about between these points. Another cause for poor compression may be found in leakage past either the valve caps, spark plugs or petcocks. Any leak at these points can be located by starting the motor and squirting oil around the joints, when it will manifest itself by the blowing out the oil as the motor is in operation. A very slight bubbling should make no appreciable difference in the compression. If the valve caps or spark plugs leak a small amount of white lead, or, better still, a little graphite will remedy the trouble. It might be well to again examine all connections between the spark plug and the magneto if your compression is good and the spark still remains poor. The distributor brush of the magneto which collects the current for the second cylinder may have a weak spring or the connection may be bad. If it is possible that the piston rings of the second cylinder are stuck in their grooves, a tablespoonful or two of kerosene may be advantageously used to loosen them up.

INJECTION TWO-CYCLE MOTOR

Cleveland, O.—Editor Motor Age—I am enclosing herewith sketch—Fig. 1, which shows a new type of two-cycle engine. This engine is of the injection type in that the gasoline is injected at the point N instead of being mixed with the air in the carbureter. This gasoline is not injected until the cylinder is filled with pure air and all ports or openings are enclosed. The illustration shows the general construction, consisting of a piston P connected with the regular crankshaft, and this piston uncovering exhaust ports E on the downward stroke, allowing the hottest exhaust gases to escape through them, and at this time a mechanical exhaust valve V opens and immediately a series of inlet ports F are uncovered, thus allowing a charge of cold air that has previously been drawn into the crankcase to fill driving out the exhaust gases through the valve V. The valve V remains open until the piston has returned on the up stroke to a position where it has displaced the contents of the combustion chamber in order to expel all of the burning gases. I have not seen this motor in operation and I would like to know from readers of Motor Age what they think of such a design.—Arthur E. Palmer.

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

DEADWOOD TO MADISON

Sturgis, S. D.—Editor Motor Age—Can Motor Age give me the best route to follow from Deadwood, S. D., to Madison, S. D.?—T. B. Lancaster.

The best route from Deadwood to Madison, S. D., is as follows: Deadwood to Whitewood over the Hill Trail, then along the railroad to Sturgis, Beaver Siding, Tilford, Piedmont, Black Hawk, to Rapid City, then east to Box Elder, Underwood, follow telephone line east to Wasta, either fording the Cheyenne river or crossing the railroad bridge about 2 miles east of Wasta. There is a bad hill to climb, no matter where the river is crossed. Continuing on to Wall, cross the railroad and keep on that side to Quinn, then on to Cottonwood, Phillip, keeping to north of railroad and on top of bluffs to the north of the Bad river. From Phillip travel on to Oldtrail, Ottumwa, Gray's, Hayes, Meers, Fort Pierre, cross on ferry train to Pierre, inquiring of the Gas Belt Land Co. for particulars of road to Blunt, and after reaching same follow the telephone line 12½ miles east, then north 1 mile to Harrold, and crossing to the north side of the railroad go 15 miles to Highmore, Miller, cross railroad and go north ¼ mile before entering town; continue east on to St. Lawrence 3 miles, turn south 1 block on Main street, then east along telephone line 6 miles, turn south 3 miles crossing railroad and town of Vayland in first mile; then turn east 4 miles then south, touching railroad at turn, 1 mile, then east 2 miles into Wessington, then 3 miles south, turn east 11 miles into Wolsey, turn south crossing railroad continuing south 4 miles, then turn east for 13 miles to Dakota avenue, Huron. From Huron go east to

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

bridge over the river just south of the railroad track, turn north under railway and then east to Cavour, Iroquois and Manchester following the main traveled road close to the railway. At Manchester go ½ mile east, 2 miles north, and straight east through Desmet. Continue on to Lake Preston, following the road leading from the east end of the lake south 4 miles and the main traveled road around the southwestern edge of Lake Whitewood. Follow main traveled road 1 mile, 5 miles south, 2 miles east, then south through west side of Oldham, going 7 miles south of the latter town. Travel east to Ramona, then east ¼ mile on the road two blocks south of the main street. Continue south ½ mile, east 3 miles, south 5 miles, 1 mile east and then south to Madison. This route practically covers 428 miles.

VALVE STEM BUSHING

Minster, O.—Editor Motor Age—In Motor Age, September 8 issue, Repair Shop column, appeared an illustrated article showing the proper way of rebushing a valve guide. I have had the same trouble with my car, but have inquired at all the surrounding towns for such a steel tubing. As I have been a subscriber to Motor Age for many years I wish you would buy me such a tube in Chicago, sending it to me by mail or express, and I will remit check upon receipt of statement. My car has a four-cylinder engine so I need eight bushings; the inside diameter should be exactly ⅜ inch, the wall 1-16 inch thick, giving it a net outside diameter of ½ inch, and the length must be 2¾ inches each. Or Motor Age might send me one or two lengths and I can cut them off myself. By ⅜-inch diameter I mean that it should have a smooth surface ready to receive the valve stem.—Ben. J. Sommer.

The tubing which you require is a standard size and may be obtained from the Chicago supply companies. Motor Age prefers that you order from them direct. As a hole in a tubing of this character is not guaranteed to be perfectly concentric with the outside diameter, it would be advisable, before drilling or reaming out the guides in the cylinders, to first put the bushing which you cut from the tubing on an arbor of a lathe and turn or skim off a trifle from the outside to insure that the hole be accurate. To avoid any inaccuracy in drilling or reaming the holes or guides in the cylinders, which are to be bushed, it would be practicable to use the cylinder cap as a sort of a jig or templet as shown at P, Fig. 2. This may be done by making a bushing B, threaded externally to fit the spark plug hole and having an inside diameter similar to the size of hole to be drilled or reamed in the cylinder for the reception of the bushing; with this as a guide for the drill or reamer there will be little chance for an error. When the holes for the bushings have all been made the bushings should be fitted into place and the fit should be a light driving one so that the tubing will be compressed a trifle when driven into place, thus permitting reaming of the bushings to secure a better and more accurate bearing surface for the valve stems. For reaming or drilling out the bushings make another bushing B1 to fit inside the bushing B and use it in the same way as bushing B. Before using the spark plug hole of one of the valve caps, or cylinder plugs as they are sometimes called, make sure that the hole is concentric with cap, and if none of the valve caps has a hole that is concentrically accurate it might be wise to make a special cap. When the bushings have been properly fitted, secure them in place with a set screw as at S. This is done by drilling a ⅛ or 3-16-inch hole through the guide and into the bushing, until the point of the drill has just entered the bushing, then tap the hole, taper the point of a screw and screw it into place. Make the thread such that the screw will fit snugly, so that it will not be necessary to make it bottom hard to fit tightly. Otherwise, the bushings may be damaged by tightening the set screw.

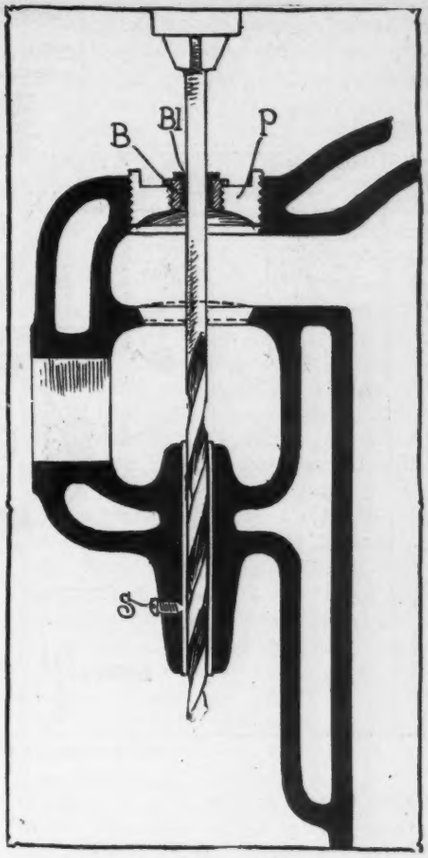


FIG. 2—REBUSHING VALVE GUIDES

METZ SPARK CONTROL

Nadeau, Kan.—Editor Motor Age—Will Motor Age kindly answer through the Readers' Clearing House the following questions:

1—Is the spark in the Metz runabout advanced any as the motor increases its speed. If it is advanced, please explain how it is done, for the Metz car has no spark lever.

2—Is a car that does not have the spark controlled by the driver as practical as one that does have the spark control lever? —Subscriber.

1—Within a narrow range, the spark in the Metz runabout, which employs fixed ignition, is advanced as the speed of the motor increases. This is brought about as follows: When the speed of the motor increases, the speed of the magneto or current generator also increases, and more current is generated. This stronger current accelerates the action of the secondary coil and the spark occurs a trifle earlier than when the engine ran at a slower speed and less current was generated in the magneto.

2—For cars such as the Metz cars, which are designed to give efficient service in the hands of unskilled operators, the fixed ignition has been found more practical than the hand-controlled ignition, for it eliminates much of the danger of a back-kick and greatly increases the life of the bearings by preventing the excessive strains to which a motor is subject when pulling a load with the spark too far advanced. Greater motor efficiency can be obtained with hand-controlled ignition, however, if the spark lever is cleverly handled.

REPAIRING YOUR CAR

Belmond, Ia.—Editor Motor Age—Through the Readers' Clearing House will motor Age kindly answer the following questions:

1—I would like to have my car repainted this fall and would like to have an interior decorator do it, or would it be better to get some one who makes a specialty of this work?

2—I desire to take a trip to Chicago this fall, and wish a good route, avoiding the hills along the Mississippi river.—Harry Bohning.

1—It would, by all means, be most ad-

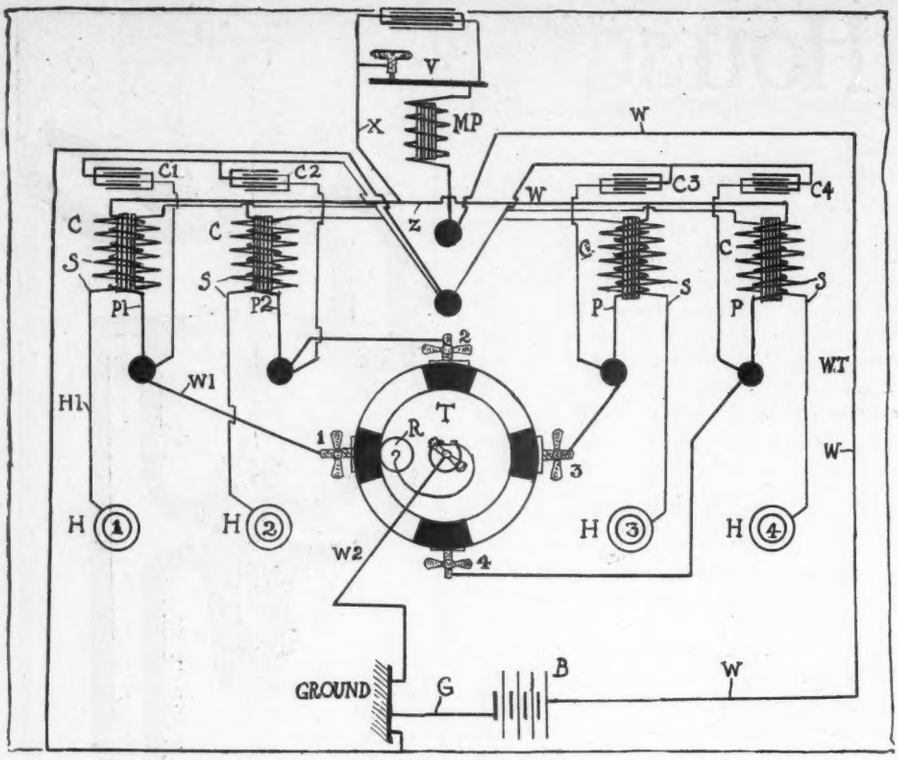


FIG. 3—MASTER VIBRATOR DESIGN

visable to turn the job over to a regular carriage painter and be reasonably sure of satisfactory results. It is possible that the interior decorator whom you have in mind is quite capable of doing the work, but as the art of carriage painting is practically a trade by itself, requiring special facilities if the best finish is desired, Motor Age would be in favor of turning the work over to the specialist.

2—From Belmond, Ia., go to Iowa Falls, thence through Ackley, Austinville, Arlington, Parkersburg, New Hartford, Cedar Falls, Waterloo; thence south to Cedar Rapids, passing through Washburn, La Porte, Mt. Auburn, Vinton, Shellsburg, Palo, Cedar Rapids, Marion, Mt. Vernon, Lisbon, Mechanicsville, Clarence, Lowden, Wheatland, Grand Mound, De Witt, Clinton, Lyons, Fulton, Morrison, Sterling, Dixon, Franklin Grove, Ashton, Rochelle, Creston, De Kalb, Geneva, West Chicago, Lombard, Chicago.

CAMBER IN FRONT WHEELS

Vermillion, S. D.—Editor Motor Age—Will you please advise me through the Readers' Clearing House as to the following:

1—How is the gather or dip obtained in front wheels—that is, is it in the axle or in the steering knuckles?

2—What make of engine was used in the Haynes model X car of 1909?

3—What kind of paint is best to be used on rims, next the tires?—W. H. Beede.

1—The gather or dip to which you refer, or the tendency of the front wheels of a car to converge toward the ground, should be brought about in the axle-spindles and not in the axle or steering knuckles; the upright portion of the steering spindle, which has a bearing or bearings in the steering knuckle, should be vertical, whilst the axle spindle which carries the wheel should slant outward and downward from the horizontal to bring about the gather or convergence of the wheels at the ground.

2—The Haynes engine, manufactured by the Haynes company, was used in that company's model X car of 1909.

3—Dixon's graphite paint has been recommended for painting the insides of motor car wheel-rims; and it is also claimed that a mixture of graphite and glycerine has been successfully used for the same purpose.

TIRES THAT CREEP

Fremont, O.—Editor Motor Age—Will Motor Age tell me which way a tire creeps on a wheel. Now the back tire, I think, creeps in the opposite direction from which the wheel is going, and the front tire creeps in the same direction the wheel is going. I have noticed on the back wheel of one of our cars, after I put on a shoe, that the shoe was pulled back. Did the tire creep or the shoe slide? Of course I know a tire should not creep, but if it does, what way would it creep?—Ed Juergens.

With the majority of tire manufacturers the matter of tire creeping is practically unknown this year. Two years ago, when the quick-detachable was brought out first, there were many owners of medium-priced cars with 30 by 3 or 34 by 3½-inch tires who used the ordinary clincher tire with a quick-detachable rim. As everybody today is aware, it is necessary to use a special hard-bead tire with a quick-detachable rim. The reason is this, that lugs are not used with the quick-detachable rim, and so the hard bead, which is also inextensible, is imperative. As it happened, where the soft-bead clincher was used without lugs the casing slipped and the valve stem was destroyed. When a rear tire or casing slips the casing lags in rotation to the wheel, and the same is true should creeping occur with a casing.

WORTH REPAIR PARTS

New Orleans, La.—Editor Motor Age—Will Motor Age inform me through the Readers' Clearing House who makes the engine that the Worth Motor Car Co. used in its 40-horsepower sightseeing cars? Is it the same engine used by the Dolson Automobile Co.? I believe it is. Can I get a crankshaft for this engine from the manufacturers or any others who handle it? The Worth people say that they bought them as a job lot and cannot get any repairs.—T. A. Greer.

Several years ago the Milwaukee Motor Co., Milwaukee, Wis., built several sizes of motors for both the Worth Motor Car Co. and the Dolson Automobile Co., and Motor Age believes that if you will consult this company you will have no trouble in getting what you want.

VALVE STEMS AND PUSH RODS

Chicago—Editor Motor Age—Please answer the following questions in the Readers' Clearing House columns: 1—Is the space, equal to a thin visiting card, between valve stem and pushrods too small for a runabout car doing general work, and at times running from 10 to 30 miles per hour? If so, why? Would this small clearance affect the power or engine in any way?

2—In the answer to the inquiry headed "Induction Coil Described" in Motor Age June 9, mention is made of pressure in the ground connection of the secondary wire, etc. Where would be the ground connection of secondary on coil shown in Fig. 2 page 16, of the issue of March 17? Would it be at point P where secondary and primary connect?

3—Please refer to Fig 3 page 17, issue of March 17. Kindly explain as to primary windlings in parallel; also winding of M P in series with windings P. Also trace current from battery to plug, showing various metallic connections. As I understand it the vibrators must continuously break the circuit in order to take care of the numerous coils involved.

4—Inner tubes are not marked or numbered. What is the best manner of marking them so as to keep record of mileage? As an owner I hope Motor Age will continue bringing to the attention of manufacturers, as well as owners, the advantages to be gained by standardization of parts, as well as accessibility of all parts. A continuous campaign along these lines will bring good results to us all.—E. S. V.

1—A little experimenting with the motor to which you refer will best answer this question. Motor Age knows of cars with

motors on which the space between the ends of the valve-stems and push-rods may be reduced to the thickness of a thin business card as you suggest and, in fact, that is just the proper amount of space intended between these parts. The push-rods are made adjustable so that this proper spacing may be maintained and noiseless operation of the motor assured. This small space, however, would not be practical on many motors for various reasons. For instance—in a motor of cheap construction one often finds little inaccuracies in the finish of the cams which causes the space between the push-rod and valve-stem to vary when the cam is closed; in other words one is apt to find high spots on the back of a cam which if the space were too small would tend to open the valve a mere trifle when it should be tightly closed and poor compression would be the result. Thus the operation of the motor will of course be affected with a consequent loss of power. Then again even on a motor in which the workmanship is accurate it is possible that when the valves become heated and a slight elongation of the valve-stems takes place, similar trouble will be brought about if the space were too small. The space should be as small as possible without preventing the valves from closing tightly in order that noise and wear may be reduced to a minimum.

2—Yes, it would be at the point P where the secondary and primary connect.

3—In Fig. 4 a simple diagram is given which will perhaps make clear the difference between parallel and series connections. In this illustration four windings P are connected in parallel to the battery circuit whereas the winding M P is connected in series. With this arrangement any one of the connections between the main wires of the battery circuit and the windings P could be broken without interferring with the action of the other windings. For example, if a connection A were broken the winding to which it is connected would be rendered inoperative, but there would be nothing to prevent the other windings from giving service. A glance at winding MP, however, will show that it is connected directly into the main battery circuit and if something should happen to one of the connections this circuit would be broken and the whole outfit rendered inoperative. The advantages of parallel and series connections is best demonstrated in an electric-light circuit. When the lamps are connected in series, if the film of one lamp is burned out all the lights on the circuit will go out, whereas when they are connected in parallel only the lamp with the burned-out film will be effected. In the drawing to which you refer which is again shown in Fig. 3, suppose the negative pole of the battery is connected to the ground the current will then flow from the positive pole through the wire W to the winding MP, then through the vibrator and the wire X and Z through the winding P1 and the wire W1 to the timer T, then through the roller and wire W2 to the ground and back through the ground connection G to the battery. The current to the plug which is generated in the secondary winding of P1 after the current has passed through it, passes directly to the plug No. 1 through the wire H1. If the roller R of the timer T were in contact with segment No. 2 the primary current would have passed through winding P2 and the secondary to the plug H2. The vibrator is, as you suggest, on the job continually, but it operates in exactly the same way for each coil and gives very efficient service as long as the speed of the motor is not excessive.

4—A little ink applied with a paint brush can be very advantageously used for marking the inner tubes.

FORD ELECTRIC LIGHTS

Salt Lake City, Utah—Editor Motor Age—We noticed in your columns about the Ford being equipped with lamps. How can one reduce the current in case the engine is running at high speed? We find that the lights work all right, but when we speed the engine they burn out.—Meredith.

Motor Age is informed that the Ford company has done considerable experimenting with its magneto in an effort to find a suitable means of arranging its system so that the magneto could be satisfactorily used for both ignition and lighting, with the result that it has issued a circular letter to its agents advising them to discourage Ford owners from attempting the use of the magneto for this purpose. It is rumored that there are Ford cars on which the magneto is being successfully used for both lighting and ignition, but no definite information has as yet been obtained.

POINTS IN MOTOR DESIGN

Cleveland, O.—Editor Motor Age—A great many of the manufacturers build engines so that you can tighten the connecting rods by simply removing two plates from the side of the engine. On the other hand, a great many engines are constructed so that it is necessary to remove the lower half of the crankcase in order to do the same work as above. Why is it that the first named method is not used altogether? Is there some other advantage caused by building engines the first named way that is eliminated when built so it is necessary to remove the lower half of the crankcase? —L. B. Lockwood.

Were it not for the steering column, the magneto, carbureter, water-pump and other paraphernalia generally preventing access to the sides of the crankcase of a motor, it is quite possible that the majority of designers would provide side plates in the crankcases for the purpose of permitting connecting rod adjustment without the necessity of lowering the bottom portion of the case. In a properly designed motor it should only be necessary to adjust the connecting-rods once in about every 10,000 miles, and then the entire motor should be generally overhauled and adjusted. To give a motor a general overhauling it is usually most convenient to remove it from the chassis and disassemble it entirely; and when a motor is given such attention regularly and the work is properly done, there is rarely, if ever, any occasion to remove the lower portion of the case, and side plates would be useless. When all people think alike, then only will a single design be adopted. There are designs of motors and cars on the market which some people would hardly take as a gift, while others are perfectly willing to pay the purchase price for said product and boast of its superiority.

UNIVERSAL JOINT DESIGN

Rock Island, Ill.—Editor Motor Age—Will Motor Age advise me in detail the proper way and reasons for placing the pieces in the middle of a universal joint parallel instead of at right angles?—W. Y.

The reason for making the cross-pieces at the ends of a universal shaft parallel is to simplify its manufacture. If the shaft is a forging, only one end can be forged at a time when the cross-portions at the ends are at right angles to each other; but when both ends are parallel the whole shaft can be forged at once. The same would be the case if the shaft were cut from a solid billet: if the cross-members were at right angles to each other only one end could be machined on one side at a setting, whereas, with the cross-members parallel, one side of each end could be operated on at one setting. The designer has also discovered that where the crosses in the joint are at right angles to each other the action is not so regular as where they are parallel. Where they are at right angles there is a retardation and acceleration every 180 degrees, or twice in every revolution, which irregular running is hard on the car and also hard on the joint.

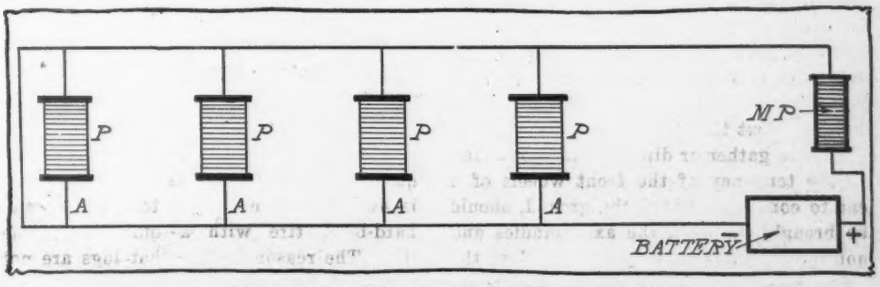


FIG. 4—WIRING DIAGRAM FOR SERIES AND PARALLEL

HOME IDEAS IN CAR OVERHAULING

H. L. Towle

IN overhauling a car at the end of the season common sense is one of the big requisites. By common sense is meant that ability to know what things the ordinary driver should do and what things he should not attempt to do. After having determined what things he might be able to do, the next essential is some knowledge of how to do them. Repairing looks to be simple work, but the amateur at it will meet with many discouragements and will find in the end it is often cheaper to go to the repairman than to do his own work. On this and the following pages the various overhauling jobs on a car are analyzed and the most necessary information given on the work to be done. With this information the task will prove a difficult one. Motor Age invites from readers experiences they have had in overhauling work, together with special jobs they have done. All communications should be signed, and if the writer does not wish his name to appear he may use a nom de plume.

ANYTHING that can be done to minimize the cost of its upkeep of the motor car deserves serious consideration. A mechanically inclined owner can frequently save many dollars on the cost of overhauling by doing the work himself during the winter or early spring when the car can without inconvenience be laid up for several weeks. The only requirements, in addition to the necessary skill and spare time, are a reasonably warm and well-lighted garage, an iron vise, a bench drill, an emery wheel tool grinder, an anvil or equivalent, a soldering outfit, and the usual equipment of hand tools. Of course if a few power tools, especially a small lathe, are available, so much the better. An arbor press and a gear or wheel puller are likely also to be useful, but, in the absence of these, special work can usually be sent to a shop. Such work as straightening gearshafts and truing up plain gearshaft journals by grinding, must of course be done in a shop. If the engine bearings need rescraping this is also a shop job. The amateur, however, can usually put plain gearset bearings in shape if he knows how and has the time. Roller or ball bearings must usually be pressed on their shafts. Attempts to drive them on are apt to result disastrously. Here again the shop must be appealed to unless a suitable arbor press is at hand.

The Three Classes

The major part of the work of overhauling may be divided into three classes: Adjustment, replacement, and refitting. Such parts as the brakes wear out so fast that adjustment is provided as a matter of course. This applies also to certain bearings. When adjustment is impossible or has reached its limit, the worn parts must be replaced. These latter may be simply bushings, ball bearings, or the like; or they may be, especially in the cheaper cars, larger parts for which no means of adjustment and no bushings have been provided. Noteworthy in this class are the steering worm and gear, sometimes the steering knuckles, and various parts of the brake and clutch mechanism. The gears must, of course, be replaced when worn, and the same is true of the valve mechanism. Refitting is applicable chiefly to the plain bearings of the crankpins and crankshaft, and of the gearset gear when anti-friction bearings are not employed. It is the most difficult part of the overhauling for the amateur to do successfully, and as regards the engine, attempts in this direction should be limited to taking up slight wear without scraping.

A class of repairs which the owner can handle, but which is apt to be botched simply because it looks so easy, is that involving such sheet metal parts as the mud guards, radiator, etc.

The first step toward overhauling is to understand clearly what is to be done. If the engine bearings are badly cut, or if the engine has run so long that the crankpins and shaft journals are worn out of round, the job is one for a good shop, and it may not be thought worth while to separate the rest of the overhauling from that of the engine. If, however, the principal engine bearings are in good shape, the rest of the work can probably be done at home.

Remove the Accessories

After washing the car, first strip it of horn, lamps, generator, mud guards, bonnet and radiator. If the rear axle and gearset are to be overhauled, take out the body holding down bolts, and either set the body one side, or, if that is impossible, draw it back two or three feet and prop it up above the chassis, Fig. 1, to give room to work beneath it.

It is advisable for the novice to do the easiest overhauling first, and usually the brakes fit this description. Take a large pan of kerosene—gasoline works faster, but involves the danger of fire—and a paint brush, and wash well the portions on which work is to be done. As parts are taken apart, they are dropped into a pan of kerosene to clean, and when clean they are sorted into boxes to keep them from getting lost or mixed up. This plan saves time on reassembling, and it saves also the risk of forgetting to include some small but essential part and being obliged consequently to do part of the assembling over again.

In overhauling the brakes, bear in mind that the most effective position for a lever operated by a pull rod or cable is at right angles to that rod when the brakes take hold. The more nearly the lever is pulled into parallelism with the rod, the less effective it becomes, regardless of the brake shoe adjustments otherwise. Consequently when this condition is reached new shoes must be put in. To get at the rear wheel brakes of some cars the wheels must be removed, and this is frequently necessary also in order to get at the differential and bevel gears of shaft-driven cars.

Test the Gearset

To test the wear in the transmission system, from speed changing gears to rear wheels, set the first speed in mesh, jack up one end of the rear axle, and rock the free wheel back and forth. The motion before the clutch starts to move is the sum total of all the transmission play. Of this a large part is in the small gears of the differential, and some of it is present even in a new car. If the play is excessive—a point which only inspection or experience will definitely decide—the differential should be taken out for examination. Besides the wear of their teeth, the pinions of the differential tend to wear loose on the arms of the spider which carries them. Lubrication at this point is difficult and wear is sometimes rapid. Sometimes the pinions are bushed, sometimes not. Sometimes the entire set of pinions and spider must be replaced.

When the differential is out, the bevel driving pinion and gear should be examined. The former is the most likely to be worn. If the latter is a third or half worn out—as indicated by comparing its condition with that of the worn-out pinion—it is better to replace it than to run the new pinion and half-worn gear together. The latter always results in noisy action and unduly rapid wear. In putting a new gear on the differential and also in reassembling the differential after taking it apart, special care must be used to see that no possible chance is left for the parts to work loose. The safest practice is to head over the ends of the bolts so that only a file or a chisel will loosen them; but large, closely fitted cotter pins in slotted nuts will serve. A loose nut in the axle or transmission case may easily wreck the gears that strike it, or crack the case.

Examine the universal joints of the propeller shaft. They are likely to be loose from wear. When this looseness has reached the point where the bearing surfaces refuse to retain oil or grease and when it has become unpleasant to the driver of the car, it is time to replace

the universal joints. If possible, adequate provision should be made for their lubrication, either by enclosing the entire joint in a leather or sheet metal case and filling it with very soft grease, or by forcing grease into the interior of the joint by means of a grease gun or grease cup. Frequently the cup can be added, or a hole drilled and plugged for the grease gun, if no such provision were made at the factory.

If the car is of the chain-driven type the sprockets should be examined for wear and both they and the chain replaced if necessary. Usually by exchanging right and left hand sprockets the wear may be made to come on the previously unworn faces of the teeth, thus doubling the useful life of the latter.

Consideration of the speed changing gears should cover the gears themselves, the gearshaft bearings and the shafts. If one gear of a mating pair must be replaced it is well to replace the other if the latter is half worn out, for the same reason as above noted in connection with the bevel gears. These gears likewise must be very solidly secured. If they are bolted to flanges and the bolts are a little small for the holes, there is danger of the bolts loosening. It has been suggested for such cases to tin the bolts as for soldering, and to heat the gear and flange with a torch after the bolts are tightened up, in order to fill the spaces around the bolts solidly with solder. This soldering or sweating process might to advantage be extended to include the entire bolt and nut. It should not, however, be trusted alone to hold the nut against working loose.

Attention to Bearings

Treatment of the gearset bearings will depend on whether they are plain or of anti-friction type. If the former, they are almost certain to need attention; if the latter and of good quality, they will need no replacement for many thousand miles. If of inferior make or if improperly mounted they may need to be replaced after the first or second season. This applies also to the anti-friction bearings of the rear axle. While the gears are out, it is well to test the shafts for possible springing, and if they are sprung to have them straightened.

Refitting plain bearings in the gearbox is a job requiring some skill, and the novice is advised not to try it unless he has had the opportunity to watch similar work done by a skilled workman. Three things are essential: 1—The shaft journals themselves must be round; if cut they should be trued up by grinding. 2—The process of refitting must restore the shaft axes as near as possible to their original positions. This is done when possible by leaving unworn half—upper or lower—of the split bushings unchanged, and replacing or refitting the worn half to restore its bearing surfaces to the original position. 3—The halves of split bush-

ings must be riveted securely to their seats by brass rivets, so that no motion of the bushing is possible under any circumstances, regardless of the fit of the shaft.

Skill is Needed

Modifications of the above rules are sometimes necessary. If the journal is materially reduced in diameter by grinding it will no longer fit the unworn half of its bushing, and the latter must be centrally scraped to reshape it to the smaller diameter of the journal. This, of course, shifts the center of the journal and to make a correct job the bearing, at the other end of the shaft should be shifted also by an equal amount, or the bushing lined up with paper to keep the original center unchanged. As the upper half of the bushing at one end and the lower half at the other end may be worn, some judgment and common sense are required to manipulate the work of fitting so that when the job is finished the two shafts shall still be parallel. This, of course, is really the important point, since if the shafts are not parallel the gear teeth will not bear evenly.

If the bushing is not split and the journal running in it has been reduced by wear or grinding, a new bushing specially bored to the reduced journal diameter may be required. A certain tolerance is admissible in applying these rules, for the reason that the very thick oil used as a lubricant with plain bearings is not as easily squeezed out by pressure in a loose bearing as a light oil. With medium engine a good rule for clearance is that the bushing shall exceed the diameter of the journal by .001 inch plus .001 for each inch of its diameter; that is, a 2-inch bushing would be .003 inch larger than its journal. In the gearbox, however, 3 or 4 additional thousandths are admissible, owing to the thickness of the oil that is used.

The worn half of a split bushing may be replaced by a new one, or it may be packed up with paper liners shellacked fast to the bushing. If liners are used the first one is narrow, that is, about half as wide as the outside diameter of the bushing, and the second and third a little wider, the last one extending nearly around the outside surface. The total thickness of these should slightly exceed the amount of looseness between the bushing and the shaft where it is most worn. After the shellac is dry the half bushing is driven solidly home with a mallet and a block of wood, and is riveted fast with rivets of brass rod, since otherwise it would loosen up and pound the paper liners into fragments.

Scraping the Bearing

The scraping is done with half round or triangular tools made for the purpose. The journal is smeared thinly and evenly with red lead mixed with oil and is turned in the bushing to show the high spots by contact. The high spots are scraped down and the process repeated by trial and error till the journal has a fair bearing all over. At this time it must, of course, run true in the bearing at the other end. When the work is done the journal must turn without binding when the other half of the bearing is bolted down solidly, with its edges against the shims if any are used. Of course, the shims must be divided equally between the two edges to avoid distortion of the bearing cap. A micrometer, if you have one, is the best means of equalizing the shims. Before the shaft is finally assembled it must be oiled, and it is well to rub a little graphite over the surfaces of the bushings. As the utmost care in scraping will not prevent high spots, and as these high spots will wear down in the first 50 miles or so, it is proper to set up the bearing with a just perceptible tightness—not too much or the bearing will cut—and to feed somewhat thinner oil than usual freely for the first 50 or 100 miles. It is well also to add half a teaspoonful of fine flake graphite to each quart of oil.

Before finally assembling, it is well to

FIG. 1—JACK UP THE BODY TO DO REPAIR WORK

FIG. 2—SCRAPING THE CARBON FROM CYLINDERS

test the alignment of the shafts by rubbing a little red lead on the teeth of the gears and turning the gears in their running direction in mesh to see whether the red lead transfers evenly from one gear to its mate. Of course, this is to be practiced only when both gears of the pair are unworn, since it frequently happens, owing to unequal wear of bearings, that gear teeth wear askew in time, and if only one gear is replaced the red lead test will be misleading.

Testing Bevel Gears

If the car has side chain transmission the problem of lining up the shafts is a little more complicated, since one must make sure that the bevel gear teeth will likewise run fair and true. Evidently if the bevel pinion is shifted to a new position by the refitting process it will not run true with the large bevel gear unless the latter is shifted to correspond. It is always best to stick as closely as possible to the original shaft positions indicated by the unworn halves of the bushings. Fig. 3 shows the method of determining whether or not the bevel gear teeth have a fair contact over their entire width. A slip of paper P is inserted between the teeth, first at the small, then at the large end, and the gears are turned in their running direction. If the paper is pinched by the teeth at both small and large ends the job is good. If the pinion or gear has been replaced without its mate, it is quite probable that on refitting, contact will be found to be made only at one end of the teeth. If this cannot be corrected it is highly advisable to run the car with caution, avoiding low-gear work as much as possible for the first 100 miles or more, until the bevel teeth have had a chance to run themselves to a fair contact. This applies particularly if contact is made at the small end of the teeth, as the leverage against the teeth is then greatest.

The most difficult problem in connection with plain gear shaft bearings is that of lubricating them without the bearings being cut to pieces by the steel grit worn from the gears. The life of the bearings may be greatly extended, if the oil pockets over the bearings are large enough, by soldering brass wire gauze over the pockets. The gauze should be no coarser than one hundred wires to the inch, and it should fit the top of the pockets closely, preferably with depressions to encourage the oil to work through the screen instead of running off. If wire gauze cannot be used for any reason, a bunch of waste in the oil pocket will serve the purpose.

In overhauling plain bearings attention should be paid to the oil circulation. Oil cannot enter a bearing faster than it has a chance to run out, and if escape of oil from the outer end of a bearing is prevented by oil-tight packing and the absence of a return groove, the oil will stagnate in the end of the bearing and collect metal particles which in time will cut the bearing. Surrounding the end of the bearing there should always be a circular groove leading into a return groove of ample dimensions to carry the heavy oil back into the gearbox. It should go without saying that with plain bearings grease must not be used for lubrication, since grease, to reach bearing surfaces, must be worked in by mechanical motion or forced in by pressure.

Most gearboxes today have anti-friction bearings. These require no fitting, and if replacement is necessary it is simply a job for an arbor press to force the old bearings off the shaft and put on new ones. Aside from their greater durability, the advantage of high grade anti-friction bearings is that they do not wear appreciably out of line, consequently the gears always run true.

A metal disk clutch is not likely to require anything beyond cleaning. If of the dry-plate type, examine for wear and replace the leather or raybestos surfaces if required. A leather-faced cone clutch occasionally demands renewal of the leather. The old leather is used as a pattern for the new leather, which is cut ½ inch short, soaked in water to stretch it, and riveted on before it dries. The operation requires forethought in laying out the rivet holes, and some dexterity and speed in riveting the wet band of leather. The rivet heads must be countersunk.

Examine the oil system for leaks, particularly for leaks in the pipes and connections. If the self-contained circulating system is used, clean the wire screen at the intake of the pump and flush out the reservoir and crankcase with kerosene.

Cleaning the Radiator

Flush the radiator with clean water unless this was regularly done when the car was in use. The best way to clean the radiator is to pour water in while the engine is running, and to drain it off by the petcock, or, better, by disconnecting the return pipe from the top of the radiator. If rubber hose connections are used they are likely to need replacing. If the radiator leaks, empty it out and lay it flat while soldering it, Fig. 5, so the solder will not run away, and so that new seams will not be opened by the hot iron. If the motor has shown a tendency to overheat, it may be due to imperfect circulation or to partial clogging of the radiator. The former is shown by noticeable difference in temperature between the top and bottom of the radiator. The latter is often shown by local difference in temperature between the right and left sides of the radiator. If the radiator is clogged, it may sometimes

FIG. 3—TESTING BEVEL GEARS TO SEE IF THEY ARE CORRECT

be cleaned by filling it with clean rain water and changing the water every day or two. If this does not serve the purpose, chemical treatment may be necessary, using kerosene, soda ash, or dilute hydrochloric acid, according to the nature of the deposit. This is a subject too extensive to be dealt with here. A good guide to the proper procedure may be had by inquiring of any power plant in the neighborhood regarding the softening compounds used in the boiler.

As already remarked, a correct job of scraping the engine bearings cannot be done by the amateur. It is, however, possible to take up the main or crankpin bearings if they are not cut and if the journals are not worn out of round. The shims, if solid, are carefully filed a little thinner. If the shims are built up of copper strips, an equal thickness should be taken from each, in order not to tilt the bearing over. Of course, the upper brasses of the main bearings are unworn, and it is only necessary to bring the shaft up till it touches the latter with proper oil clearance. The work can usually be done from beneath by lowering the oil

FIG. 4—SCRAPING A BUSHING TO GET IT INTO CORRECT CONDITION

pan. To rescrape the bearings properly the engine must be taken out and turned upside down, as in Fig. 4.

Other overhauling of the motor should be limited to accessories, ignition and carbureter, and to such matters as the valves, pump, and oiling system. It is just as well, instead of trying to time the valves by the marks on the flywheel, to adjust the lifters to give the minimum clearance when the valve stems are hot. The smaller the clearance, the more quietly will the valves operate. If the lifters are worn enough to give noticeable side play, or if the rollers are worn materially loose on their pins, the lifters should be replaced, together probably with their guides, as there is no way of taking up lost motion. If the cams or the timing gears are found to be worn, of course replacements are necessary here also, for it is impossible to get good action from worn cams.

The Motor Knocks

If a knock is traced to the engine, efforts should be made to locate it. It may be in a loose main or crankpin bearing, a wristpin bearing, or a camshaft or pump bearing. Lack of parallelism between the wristpin and the crankpin will result in an end knock if the connecting rod ends have sufficient play. A piston worn materially small for its cylinder will let oil work up past the rings in undue quantities, and will knock in time with

the engine at each explosion. The only remedy is to grind the cylinder true and make a new piston. Occasionally a magneto coupling may be loose, in which case a very distinct knock will result.

While the other work is done, it is a good idea to overhaul the tires and vulcanize cuts in the tread which reach the fabric. When the tires are in shape they should be taken off the rims, wrapped up, and the rims cleaned of rust and painted.

PARIS BUS SERVICE

Eight hundred motor omnibuses having to go into service on the streets of Paris, the General Omnibus Co. holding the monopoly for the French capital is placing orders for new vehicles with several of the leading factories. Among the new buses to be put on the streets is one produced by the Renault company. Although differing from the vehicles at present in circulation and being an entirely new production of the Renault company, it follows the same general lines as that firm's well known touring cars.

The omnibus company's requirements are a vehicle with a capacity for thirty-two passengers on a single deck, capable of an average speed of 12½ miles an hour on the level, with a maximum of 15½ miles an hour, and the ability to climb a grade of 8 per cent at not less than 6 miles an hour with full load aboard. The Renault contribution is a bus driven by a four-cylinder motor of 4 3-10 inches bore by 6 1-5 inches stroke. It is carried forward under the driver's seat, with the radiator at the back of the seat and in front of the bodywork. This is equivalent to the usual Renault position of the radiator back of the motor, but in the case of the omnibus there are fewer exposed radiator tubes on each side than if a bonnet were used. Cooling is by thermosyphon, all the air being drawn in through the radiator tubes by means of the flywheel fan, and expelled below. The housing for the driver's seat and the undershield are made so there shall be no direct leakage of air onto the motor, it being important that the full blast shall pass through the radiator. As the driver's seat can be made readily dismountable and there is no immovable radiator in front, adjustments to the motor can be carried out with much greater facility than on the present model with motor under the seat and behind a radiator.

In accordance with the request of the omnibus company, the driver's seat is placed at the left hand side, with the steering wheel, brake and gear levers in the center. Experiments have shown that when the driver is seated on the left the control of a car is easier and accidents are fewer—in traffic, at any rate—than when the usual right-hand position is occupied.

The Renault type of inverted cone clutch, as employed on the touring cars, is fitted to the omnibus. The gearset, too, is practically of standard design, giving three speeds forward and reverse of the straight through type. Final drive is by propellershaft to an original type of rear axle, having been thoroughly tested on 5-ton trucks with metal tires. The differential housing is carried within a cradle, the tubular extensions of which receive the driving shafts running to the road wheels. A couple of triangular torque bars are carried, one being locked to each side of the differential housing. Springing is by means of semi-elliptics both front and rear, those for the driving wheels being mounted below the axle and supported by substantial brackets on the under side of the channel-steel frame.

Unlike the present buses, the Renault will be fitted with a thirty-two-passenger single-deck body having transverse seats and a spacious overhanging rear platform. The body will overhang the side members of the frame and on this account a channel-section outrigger frame is carried from the main frame. The bus, as shown in the illustration, has undergone its tests with a useful load of 4½ tons, this being substantially in excess of the amount that will be carried when in service on the streets of Paris. The motor has been tested with gasoline, but will consume benzol when in actual service.

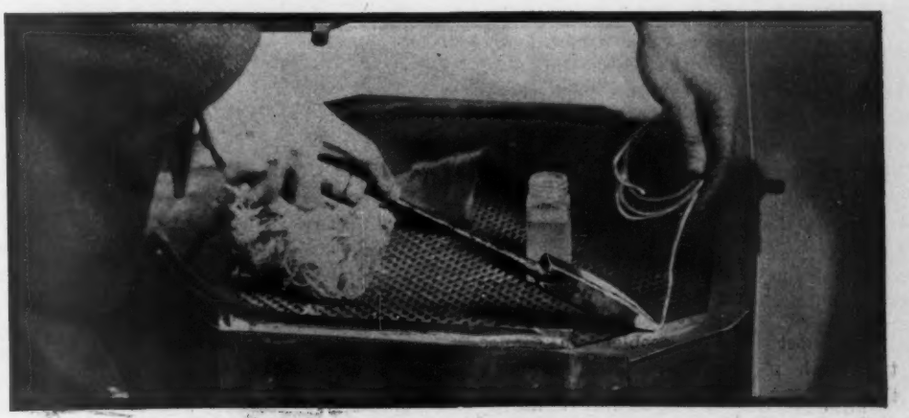


FIG. 5—LAY THE RADIATOR FLAT WHEN SOLDERING

H. D. Lombard, of Los Angeles, Dipping Rear Wheels of Stoddard-Dayton in Pacific Ocean Preparatory to Transcontinental Trip

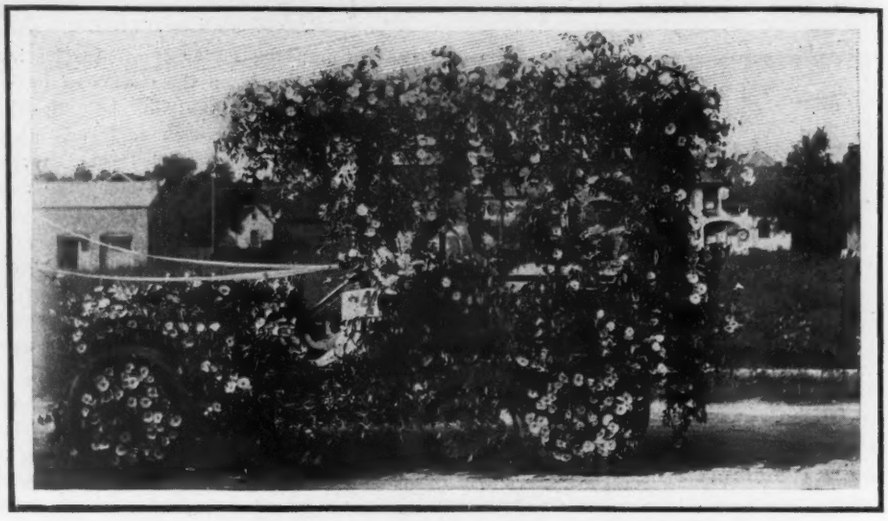
FOM Ocean to Ocean—H. D. Lombard, of Los Angeles, recently made a transcontinental run in a Stoddard-Dayton, traveling from the Pacific ocean to the Atlantic, 3,432 miles, in 29½ days running time. Then he toured to Buffalo.

Spokane Has Motor Day—In connection with the Spokane interstate fair, to be held in Spokane, Wash., next week, an interesting motor race program will be given on the final day. Cups have been offered to the winners.

Hoosiers' Gasoline Bill—An idea of the amount of gasoline used in Indianapolis is shown by the quarterly report of gasoline used in that city, compiled by Sid Conger, state oil inspector. During the quarter ending September 30 the amount of gasoline used in Indianapolis was 25,812 barrels, a gain of 8,570 barrels over the corresponding period of last year. There are now about 2,000 motor cars and about 600 motor cycles owned in Indianapolis.

New Richmond Officials—The Richmond Automobile Club, of Richmond, Va., at a recent meeting elected officers as follows: Horace S. Hawes, president; E. C. Pelouze, vice-president; Melville C. Peck, secretary and treasurer. Preston Belvin, W. B. Nelson, Dr. M. D. Hodge, Jr., John B. Swartout and Rufus C. Williams, executive committee. A petition was offered by Vice-president Pelouze for individual signatures, asking the city council to prevent a franchise being granted a street car corporation to lay a track across Monument avenue, contending that the avenue's beauty would be sadly marred.

May Have Two Shows—There still is a likelihood that Baltimore will be the center of two shows this winter, one under the auspices of the Automobile Club of Maryland, as heretofore, and the other under the supervision of the Baltimore Automobile Dealers' Association. The latter association was formed after the show last year and those dealers belonging to it said that they thought the dealers themselves should manage the show. At the same time the club members said they had no idea of giving up the show business as the two shows held under their management were successful. Neither of the two organizations, however, has set any dates, although one of the leading lights in the dealers' association stated that the dealers probably would decide on a date similar to that of last year; that is, some time in February or March. Should the club hold a show it would likely again have an option on the Fifth Regiment armory, while in the case of the dealers it is believed the Lyric theater would be selected.



McGee's Stoddard, Winner in Dayton's Floral Parade

Pennsy's New Tags—The Pennsylvania state tags for 1911 will be yellow with figures and letters in black. The Keystone and other features of the present blue and white tag will be retained. More than 32,000 tags have been issued in 1910, and about 35,000 are ordered for next year.

Another Convert—Fire Chief Joynes, of Richmond, Va., will apply to the city board of fire commissioners for a motor car to take the place of his horse and buggy. He contends that Dobbin is too slow for his purpose and his duties will be greatly facilitated if he is furnished with a fire chief's car.

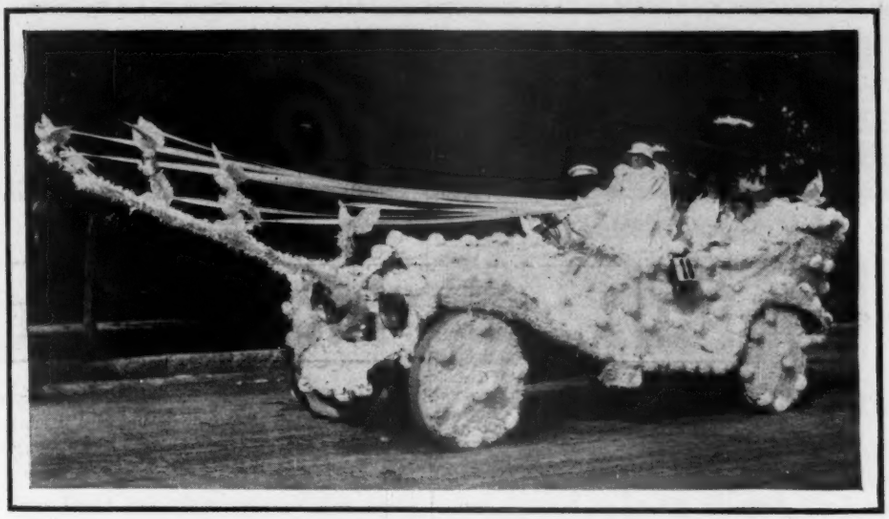
Made Chief Register—After fighting it off for 2 years, three cars opened by the fire department of the city of Columbus, O., have applied for registration under the state law. Chief Charles Lauer always contended that cars operated by the fire departments of municipalities did not come under the provisions of the state law, and as a result failed to register the cars operated by himself and assistant chiefs. Recently the state registrar of motor cars wrote to Mayor Marshall of Columbus, enclosing a copy of the opinion of the attorney general, in which it was held that all cars operated by city departments must be registered, and as a result applications were made.

New Secretary Chosen—At a meeting of the board of governors of the Columbus Automobile Club, of Columbus, O., Dr. Walter E. Ranchous was elected secretary to fill the vacancy caused by the resignation of Arthur M. Crumrine. Frank McMakin was elected assistant secretary.

Portland Wants Clubhouse—There is a well-defined movement among members of the Portland Automobile Club, of Portland, Ore., to build and furnish during the coming year a clubhouse, to cost $15,000 or more. The location generally favored by the board of directors is about 25 miles from Portland overlooking the Columbia river.

Springfield Will Entertain—With the state fair races just over and a feather in the hat of the members of the Springfield Automobile Club, of Springfield, Ill., the members of that organization are already commencing to prepare for the entertainment of the members of the Chicago Motor Club on the occasion of the visit to Springfield of that organization, November 9, on the 1,000-mile reliability. The Springfield club is making elaborate arrangements for the reception of the visitors. The noon

H. D. Lombard Completes Transcontinental Trip by Running Into Atlantic Ocean After a Successful Journey



Congressman Cox's Stoddard in Dayton Floral Parade

hour will be spent in Springfield, and as the afternoon drive is only 40 miles to Decatur, it is likely the greater part of the afternoon will be spent in the capital city of Illinois.

Tradesmen Get Together—Members of the Philadelphia Automobile Trade Association and their friends held a fall sociability run to the Orchards at Essington Wednesday night, and partook of an old-fashioned beefsteak dinner. The start was made from the board of trade headquarters, Broad and Callowhill streets, at 5 o'clock. This event is one of a series to be arranged from time to time, with the object of bringing the members of the trade together for better acquaintance with each other and for the exchanging of ideas for the betterment of the trade.

Useful Road Book—The tour book of the Portland Automobile Club, of Portland, Ore., has recently come from the press, and is being distributed among the 500 members of the club. It contains maps of all Oregon roads, and is the first complete series ever published. The tour book shows the desirable roads for use of motorists in Oregon, and contains a vast amount of information for touring parties. The names of the members of the club are printed in gold. A facsimile of the membership card is put in a prominent position. The significant part of this card is the portion obligating the holder to help his brother member, provided that brother be met on the roadside trying to make repairs. The tour book also contains full copies of the state and city traffic ordinances.

Motordrome's New Dates—Manager Walter Hempel of the Los Angeles motordrome has returned from the east and announces the opening motordrome meeting for Saturday and Sunday, November 26 and 27. His first meet probably will consist of short races with a 50- or 100-mile event for Sunday. For Christmas the motordrome will have a 24-hour race.

Vigilance Committee Desired—After a lengthy conversation with Chief Carter, of the police department of Columbus, O., in which the Columbus Automobile Club was represented by Normal O. Aeby and Herman Hoster, it was decided to organize a vigilance committee of twenty, which will patrol the theater district to prevent the stealing of motor cars. The committee will be made up of members of the club.

Will Build Boulevard—The county board of Milwaukee county, Wisconsin, has decided to build the first section of the Grand avenue boulevard project this winter. The boulevard will commence at the west end of the new $3,000,000 Grand avenue viaduct, the largest concrete structure of the kind in the world, and it is planned to ultimately extend it to the county limits. Property owners along the route have agreed to donate enough land to make the boulevard possible. It will be 120 feet wide and one of the finest roadways in America. Grand avenue boulevard in the city of Milwaukee connects with the viaduct at its east end.

Aroused Over Roads—Residents of Garrett County, Md., want the balance of $159,000 of the allotment voted to it for the improvement of the state roads. The entire allotment was $228,000. Fourteen miles of road have been completed in the western section of the county.

Grand Rapids' Show—The second annual show at Grand Rapids, Mich., probably will be held February 15 to 18, inclusive. This is the week following the big Chicago exhibition. As was the case last year the show will be under the auspices and management of the Grand Rapids Herald. Last February the Grand Rapids show covered 30,000 feet of floor space and $100,000 worth of cars were on exhibition. An estimate for 1911 gives the floor space at 50,000 feet and the value of the cars at $250,000.

Reliability Postponed—The 5-day reliability contest to Richmond and return, under the auspices of the Washington Post, has been postponed from October 14-18 to October 21-25. The fact that a number of contestants desired to witness the grand prize race on October 15 was the reason for changing the date. William D. West, who was the referee of the Post's run early in the season, will be the referee and chairman of the forthcoming tour. The other officials selected are: Starter, William Jose; chief observer, Frank Boyd; checkers, E. H. Johansen and Frank Olmstead.

Sees Passing of Horse—At a cabinet meeting of city officials recently, Mayor Shank of Indianapolis discussed the question of replacing the horse-drawn equipment in the fire department with motor apparatus. The mayor said he believed it would be only a short time before, as a measure of economy, all horse-drawn equipment was abandoned. The city has twenty-seven hose wagons, eleven engines, two chemical wagons, two aerial trucks and other apparatus. The first bit of motor apparatus, a combination hose and chemical wagon to carry ten picked men, has just been ordered.

NEW TYPE OF BODY BROUGHT OUT BY WHITE COMPANY FOR ASH TRUCKS

In the Realm of the French Test Motor Ideas

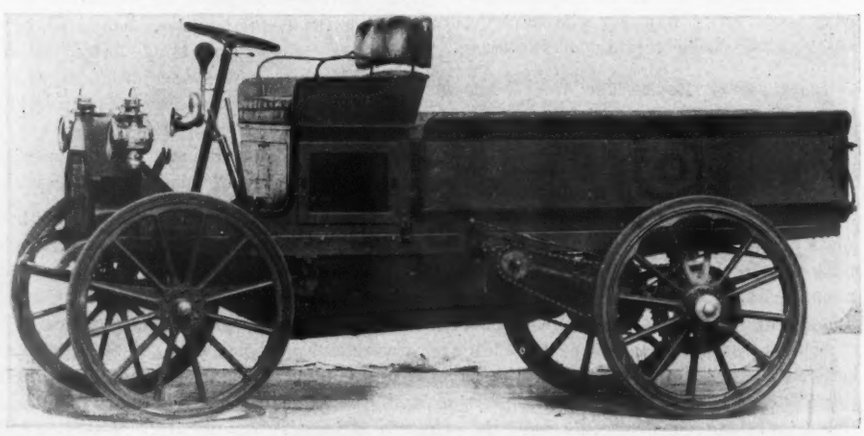
TOURING cars, motor trucks, motor car guns, motor cycles, airships and aeroplanes all have contributed towards the success of the French military maneuvers. The airships were the Clement-Bayard, with two Clement-Bayard motors of 120 horsepower each; the Liberté, with one Panhard motor of 120 horsepower; the Colonel Renard, with Panhard motor, and the small Zodiac, with a Clerget motor. Fourteen aeroplanes have taken an active part in the operations, the machines being supplied from the Antoinette, Farman, Sommer, Wright and Bleriot factories. Among the reservists who were called up with their aeroplanes were Hubert Latham, on an Antoinette, enrolled as private in the First Engineers; Louis Paulhan, as lieutenant in the same regiment; Louis Breguet, with the Breguet biplane of his own invention, and Laurent Seguin, inventor of the Gnome motor, as corporal in the engineers.

General Picquart, commanding the Second army corps, was given four aeroplanes; his opponent, General Meunier, at the head of the Third army corps, also was supplied with four heavier-than-air machines, and General Michel, the director of the maneuvers, retained six aeroplanes for his personal information. The chiefs declare themselves thoroughly satisfied with the results, the aeroplanes having proved themselves much more valuable than cavalry for scouting purposes and capable of being relied upon in any ordinary weather. In judging their performances it must be remembered that, with the exception of such reservists as Latham, Paulhan and Breguet, the majority of the aerial officers had had no previous experience in cross-country work.

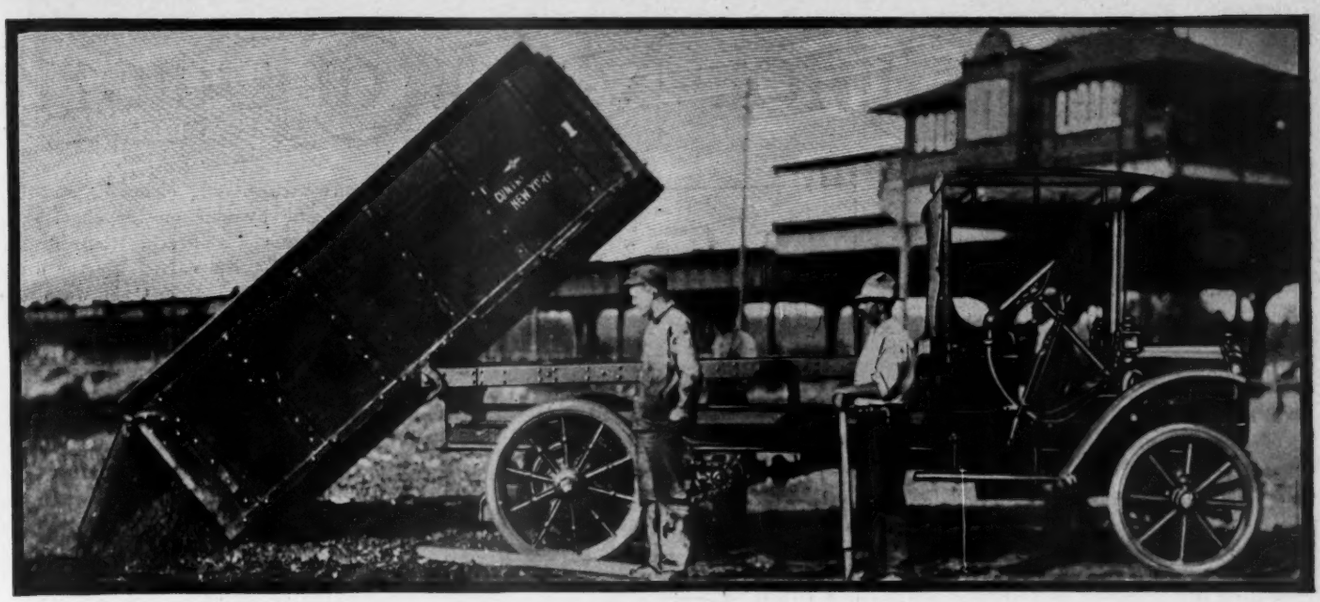
The airships provided all that was expected of them without furnishing any new feature. They were much more handicapped by the weather than the aeroplanes, but succeeded in making a number of long cross-country trips. The most interesting feature was the use of a wireless telegraphic outfit on board the Bayard-Clement, by means of which it was possible to remain constantly in communication with the Eiffel tower at Paris.

Clement-Bayard presented its motor car cannon, consisting of a quick-firing gun mounted on the rear of a standard chassis. This, however, is not a new feature, having been employed for some time by the French troops, notably on active service in Africa. A special cannon for fighting airships and aeroplanes did not prove a very great success. The cannon is carried on the rear of a 40-horsepower de Dion chassis. It is a quick-firing, 75-millimeter piece, with a horizontal range up to 8,200 feet and a vertical range of 16,000 feet.

The 30,000 troops comprising the Third army corps had supplies brought to them exclusively by thirty motor trucks. Eight of these were meat wagons and twenty-two carried bread, potatoes, coffee, sugar and fodder for the horses. In addition to these thirty there were ten other motor trucks serving the Third cavalry division exclusively. The motor trucks comprised the few owned by the army, all the vehicles which have recently come through the military trials held near Versailles, and a number supplied by private firms under the subsidy system. They were exclusively gasoline-driven vehicles, no steamers or gasoline-electrics being employed. The eight meat wagons, six of which were Berliets, with special large capacity bodies, and two Paris single-deck omnibuses modified for this work, brought meat every day from a point 30 miles to the rear of the fighting line. The cattle were slaughtered each morning and the following morning sent by the motor trucks to the points fixed by the commanding officers, to which point each battalion came to take delivery.



REO MODEL H A NEW COMMERCIAL TYPE



DUMPING BODY DESIGNED BY WHITE COMPANY IN OPERATION

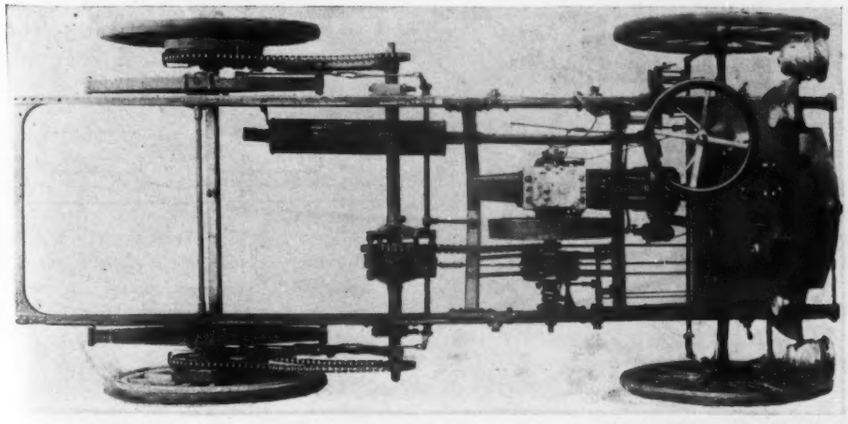
Commercial Car

Reo In Commercial Realm

ORGANIZATION of the Reo Motor Truck Co., which will manufacture commercial cars in Lansing, Mich., and put them on the market at a remarkably low figure, is now practically perfected, it is learned here. The concern will be capitalized at $1,000,000. It will be closely allied with the Reo Motor Car Co., R. E. Olds and others largely interested in the latter company holding a controlling interest, or 51 per cent of the stock in the new corporation. It is understood that the directorate of the Reo Motor Truck Co. will be composed largely of men who are on the board of the other. Officers will be announced within a few days. R. E. Olds is the guiding genius in the new venture. The company has taken over the old Lansing stove works and a large force of men is at work installing machinery, building additions and making alterations where they are necessary to meet the new requirements. The plant will begin operations late in December, and the cars will be on the market the first of the year.

Two models will be manufactured. One of them, model H, is a power wagon of 1,500 pounds capacity. The other is a light delivery truck with a carrying capacity of 500 pounds and will sell for $600. Models of both already have made their appearance in Lansing, which may explain the great demand for stock. The heavier truck is in actual service in the capital city. The new cars have one feature characteristic of all Reo cars, the left-hand drive.

On the model H power wagon there is a single horizontal motor with a 4¾ inch bore and 6 inch stroke, with a 10-12 horsepower rating. The wheelbase is 86 inches, there is a planetary gearset, the drive is double side-chain and the clutch is multiple-disk. The regular body equipment is of the open express style, but stake and enclosed bodies are optional. The body measurements are 72 by 38 inches inside. The model J, the cheaper of the two models, has the same motor. The wheelbase is 78 inches and the drive is a single chain instead of a double. Whereas, 36-inch wheels fitted with hard rubber tires are used on the model H, the wheels on the model J are but 28 inches and fitted with pneumatic tires. The body measurements of the model J are 52 by 36.



CHASSIS OF MODEL H REO MOTOR WAGON

A NEW TYPE OF TRUCK BODY

A suitable dumping body has been designed for the motor truck, and is placed in operation by the firm of contractors, McDonald & Barry, in New York city. This firm has a contract in New York city for hauling coal, ashes, gravel and similar city work and the White Co. was asked to design a suitable dumping body which would rapidly handle and make the motor truck feasible and economical. The first truck has now been in operation some 2 months carrying wet ashes from a power house situated on the Harlem river at Two Hundred and Twenty-fourth street, to a new street which is being filled in at Broadway and Two Hundred and Fortieth street. The truck carries a load of 7 cubic yards of ashes of a distance over a mile. In comparison with horses, the regular teams which have been used on this work have been hauling 3½ cubic yards to a load. The daily trips average from five to six trips. The truck has been carrying twice as great a load and has averaged from ten to twelve trips or double the number of trips.

COMMERCIAL BREVITIES

Lowell, Mass., city officials have decided to replace the present horse-drawn police patrol wagon with a motor vehicle and the contract has been awarded to the E. R. Thomas company.

A Frayer-Miller motor truck completed a trip of more than 400 miles a few days ago that is a record for long hauls of ordinary merchandise when a load of furniture was taken from Boston, Mass., to Bristol, Me.

Current Motor Car Patents

Piston Valve and Valve-Gear—No. 970,525, dated September 20, to George Hutchinson Mann, Leeds, England—The valve and valve-gear to which this patent relates is illustrated in Fig. 3, and the method of using two eccentrics, one on the crankshaft and one on the regular camshaft, to operate a single bell-crank and bring about the required movements of the valve, is both simple and interesting. The motor is of conventional four-cycle design, except for the valve mechanism which comprises the piston and valve P, the camshaft and one on the regular camshaft, to the crankshaft and may be driven by gears in the regular way; an eccentric cam K on the camshaft, an eccentric strap S around the cam K having two arms, A and B, projecting from it at different points on its periphery to form a bell-crank lever, a connecting rod R communicating between the end of the valve-stem V and the arm A, and another connecting rod engaging the arm B at one end and an eccentric on the crankshaft at the other end. As shown in the illustration, the piston in the working cylinder is ascending on its exhaust stroke and the exhaust gases are passing out below the valve P into the exhaust pipe E.

Shock-Absorber—No. 970,647, dated September 20, to James H. Sager, Rochester, N. Y.—The features of this invention are shown in Fig. 2. The extremities of the arms A and B are attached to the frame and axle, respectively, of the vehicle; the inner end of the arm A forms a casing for the shock-absorbing mechanism, and the inner end of the arm B is secured to the shaft S, to which the oval-shaped cam C is attached; this cam is designed to operate between the levers L, which are fulcrumed at one end on the lugs G of the casing and have eyes at the other end, through which the guide bolt T passes.

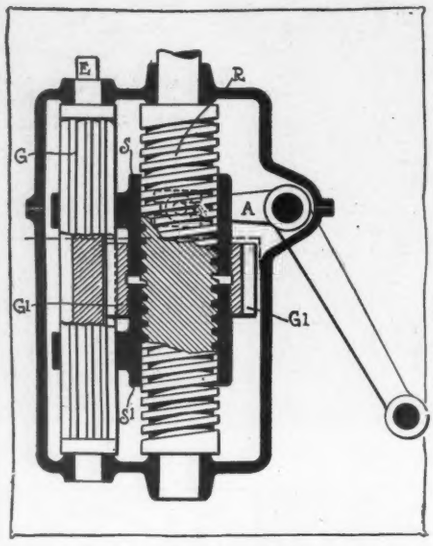


FIG. 1—WINKLER'S STEERING GEAR

The levers L are yieldingly pressed against the cam by means of the springs P and the tension of these springs is rendered adjustable by the bushings H.

Recoil Shock-Absorber—No. 970,611, dated September 20, to Harry W. Cummings, Los Angeles, Cal.—This patent relates to a shock-absorbing device adaptable to motor cars, which does not affect the compression of the vehicle springs, but tends to brake or retard the recoil force. As illustrated in Fig. 4, the device consists of a frame F secured to the vehicle frame, two revolvable drums D and D1, mounted side by side on the shaft S, a clutch mechanism connecting these drums, a take-up mechanism carried by the drum D, a flexible connection C between the drum D and the axle A of the vehicle, and a friction band B engaging the drum D1. In operation, when the vehicle spring G is compressed, the take-up mechanism on the drum D turns it in the direction of the arrow and winds up or takes the slack out of the cable C; then, as the rebound of the spring G begins, the clutch mechanism binds the two drums together so that they both turn as a unit in the opposite direction indicated by the arrow, and the braking action of the friction band B on the drum D1 gradually checks the rebound of the vehicle spring. The tension of the friction band B is adjustable by means of the nut N which acts direct on the band B.

Steering Gear Adjustable for Wear—No. 968,303, dated August 23; to Otto Winkler, Köpenick, Germany.—This patent relates to a steering gear of the worm-and-sleeve type, which has an advantage over many of the steering gears now in use in that it may be readily and conveniently adjusted for wear from the outside of the steering gear case. As shown in Fig. 1, it is a combination of a screw, R, cut on the lower end of the steering column, a nut engaging the screw which is made in two sections, S and S1, with a space between the adjacent ends of the sections, a steering arm, A, connected to the upper section, an internally threaded gear, G1, engaging the threaded outer adjacent portions of the nut section S and S1, and a long gear, G, in mesh with the gear G1, having a squared end projecting through the casing for the purpose of adjusting the nut sections S and S1 for wear.

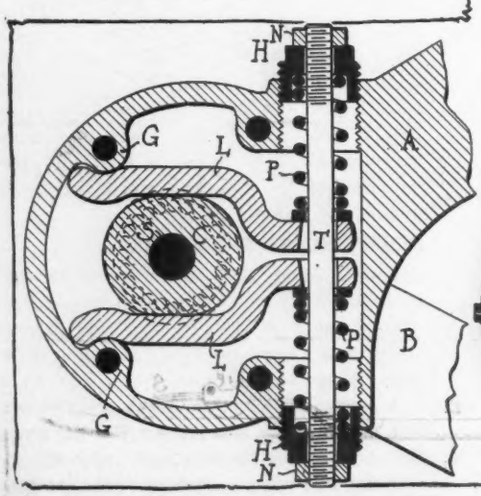


FIG. 2—SAGER SHOCK ABSORBER

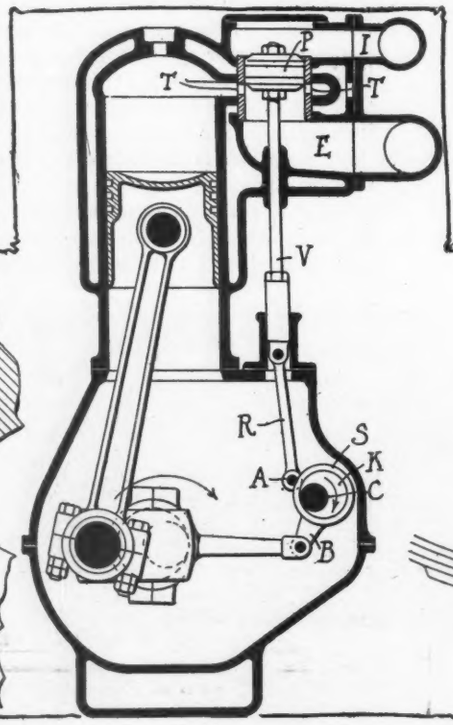


FIG. 3—MANN'S PISTON VALVE

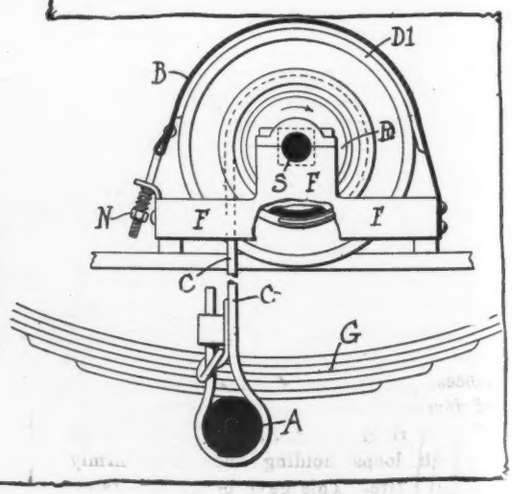


FIG. 4—CUMMINGS' SHOCK ABSORBER

Development Briefs

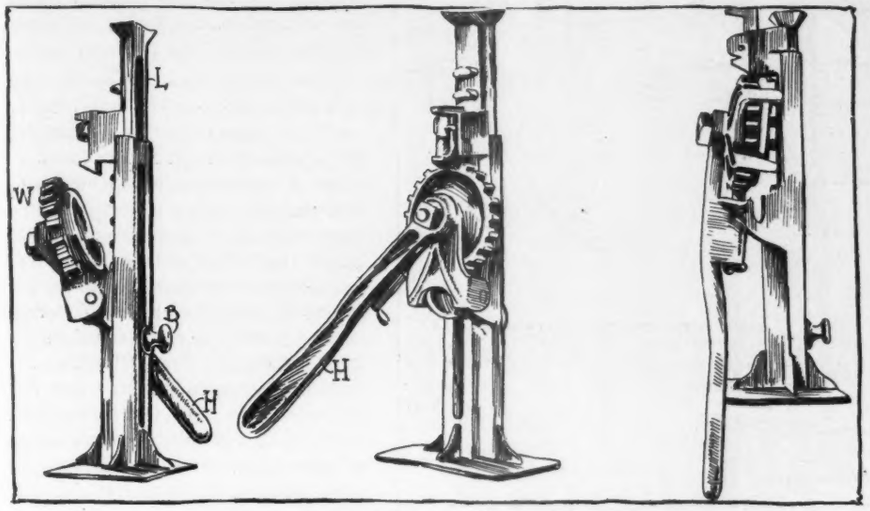


FIG. 1—THREE VIEWS OF NEW CROWN JACK

New Crown Jack

THE Asland Mfg. Co., Ashland, O., is marketing a new model of the Crown jack used for raising axles on motor cars. One feature of this jack is a button B, Fig. 1, by which the lift bar L is carried up to the axle without use of the handle, thereby saving considerable time. As soon as this is done the spinal wheel W is tilted into position, shown in part 2, and working the lever or handle H the load is elevated. To lower the jack the ratchet has to be reversed. Part 3 shows the position of the jack when folded up and ready for the tool box. This company also manufactures a tire saver, Fig. 2, used for raising the wheels of cars off the garage floor during the winter months so that the tires do not have to carry the car load. It has a swivel top T, leather faced, which may be placed beneath the wheel hub. A set of four of these jacks, one for each wheel, weighs 28 pounds.

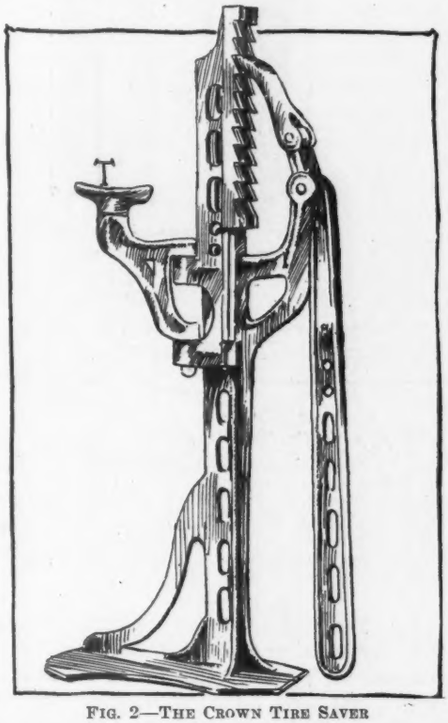


FIG. 2—THE CROWN TIRE SAVER

Woodworth Treads

The history of Woodworth treads dates from 1904, when this tread was first conceived by C. D. Woodworth, who previous to this time had been in the bicycle tire repair business. A factory to manufacture Woodworth treads was opened at Newport Upper Falls, Mass., in 1905. The first Woodworth treads were held on the tires by small steel hooks which fastened to the clincher rim. It was found that this method of fastening generally gave good results on light cars, but on heavy machines they chafed the tires and sometimes tore themselves to pieces. In the fall of 1905 a new method of fastening was adopted. This consisted of wire rings on each side which passed through loops holding the tread firmly over the tire. This gave better results on heavy machines, but frequently caused trouble by the tread shifting sidewise on the tire, and when adjusted too tight strained the leather so that it did not give good wear. In 1907 the tread with the crimped wire rings on each side, adjusted by short straps and buckles, known as the Woodworth adjustable tread, was bought out. In 1909 the factory was moved to Niagara Falls, N. Y., where a two-story brick building had been built especially for the manufacture of these treads, with a capacity of 200 treads per day. Since this building was completed in May, 1909, a smaller building has been put up in the rear, which is used for the new process of treating the leather adopted for the 1910 treads, and land also has been secured in the rear for another building, it being intended to double the capacity for 1911. The Woodworth tread at present most in demand is called the improved self-adjusting tread. It is held on the tire by very strong coil springs along the side which automatically adjust the tread on the tire. With a slight change which will make it impossible, it is claimed, to break the springs, this style will be continued for 1911.

The Conover Bumper

The New Jersey Tube Co., manufacturer of Conover bumper, combines in this bumper some novel features. To begin with the bumper bar B is a channel section with a flat surface in front and not a tubular one as generally used. This is shown in the side view, marked section A. The resilience or spring is combined in a pair of semi-elliptic springs S, one for each side member F of the frame. Each semi-elliptic is carried in a special bracket C, which in turn is carried on a long bracket C1 by which the attachment to the frame is effected. This bumper is made of bronze except the springs S which this bumper calls for but one hole being drilled in each side member of the frame. The bracket of bellcrank C attaches by bolt to the spring bolt. This bumper should be light and the channel should be quite strong.

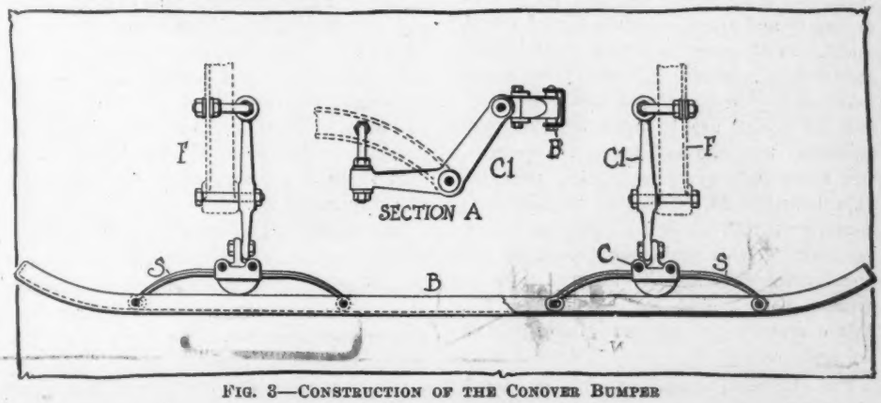


FIG. 3—CONSTRUCTION OF THE CONOVER BUMPER

THE B. & S. IMPROVED IGNITER FOR 1911 MARKET

THE B. & S. igniter, taking its name from Briggs & Stratton Co., Milwaukee, Wis., who manufacture it, is a cylindrical device 5 inches high and 3½ inches in diameter and which incorporates within it a coil, a make-and-break mechanism for the primary circuit and a distributing mechanism for the secondary circuit, so that with this igniter carried on the motor, the same as an ordinary timer or commutator, all that is needed in the ignition system is a set of dry cells or storage battery to furnish the current. The current from these dry cells goes through the transformer coil of the igniter. There is a primary make-and-break apparatus and a high-tension distributing apparatus all in one.

To get a comprehensive understanding of this igniter, Fig. 1 shows a vertical section through it and roughly speaking this consists of two main parts, one contained within the housing H, and the other within the housing H1. Within the housing H is the transformer coil made up of a soft iron core C, the coarse primary winding PC, the fine secondary winding SC, and the casing CC carrying this coil. In addition this part carries the insulating distributer plate DP in which are carried the four binding posts BP used for carrying off the secondary current to the plugs. This part also contains the distributer plate N, which distributes the high-tension current from the coil through separate segments N1 to the four high-tension binding posts. In this portion is also the rotating shaft S, which carries a bronze disk B on which the coil is located, and at the upper end of the coil is another bronze spindle B secured to the coil.

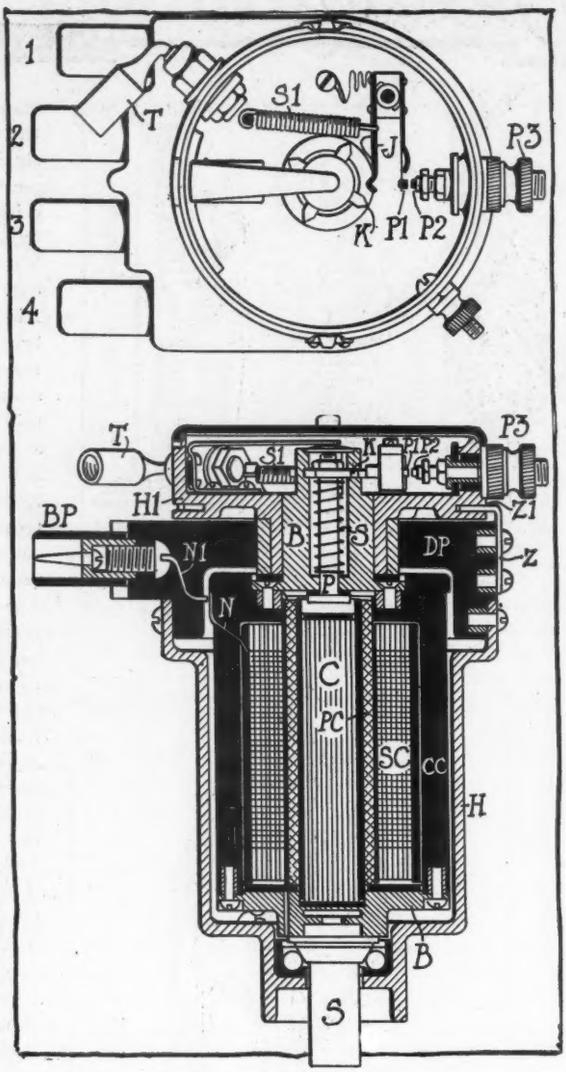


FIG. 1

Th lower half of this illustration shows a vertical section through the B. & S. igniter and the upper half is a plan illustration of the breaker mechanism. The parts designated by letters are: C, Soft Iron Core; P C, Primary Coil winding; S C, Secondary Winding on Coil; C C, Insulation for Coil; H, Case for oil Parts; S, Driving Shaft, with which coil rotates; N, Distributor Blade; N 1, Distributor Contact; D P, Distributor Disk; K, Contact Cam; H 1, Stationary Case for Primary Breaker Box; P 1 and P 2, Platinum Points of Breaker Parts.

The upper or second portion of this igniter carried within the housing H1 is the commutator or breaker box part, used to make and break the primary circuit, so that a high-tension current is induced in the secondary winding SC of the coil. Roughly speaking, this second part H1 contains the following: A ball-and-socket connector T by which the part H1 can be rocked to and fro to vary the timing of the spark. In this part is a four-point revolving cam K, which is rotated with the shaft S. There are platinum points P1 and P2 which are brought together and separated to make and break the current, and there is a primary binding post P3. This housing H1 is secured to the main housing H through a right-angled retaining strip Z, this strip being held to the distributer plate and having the part Z1 operating in a slot in the housing H1. This completes the mechanical analysis of the igniter.

The electrical operation of it is as follows: The primary circuit beginning with the dry cells or storage battery is led through the primary coil winding PC and also through the make-and-break mechanism within the housing H1, so that the making and breaking of this primary current induces a high-tension current in the secondary winding SC, which high-tension current is delivered to the four cylinders, as already stated, the revolving coil carrying its own distributer blade N, so that there is not a separate distributer as in many magnetos.

The reader's attention is next directed to the make-and-break mechanism, shown in the upper illustration in Fig. 1, which is nothing more or less than a cam-and-lever contact maker. The four-point cam K revolves at camshaft speeds and its rotation engages the lever J, which causes the contact points P1 and P2 to be brought together, thus completing the circuit from the dry cells through the primary winding PC. Instantly that the cam passes, the spring S1 causes the separation of the platinum points.

There is one feature in conjunction with the B. & S. contact maker which does not appear in this illustration, but is shown in Figs. 2 and 3, each of which is vertical and a plan section of this make-and-break mechanism. Before analyzing these details it must be stated that this igniter gives but one spark for each ignition, so that the life of six dry cells, or a six-60 storage battery is claimed to be sufficient for 2,500 miles with a four-cylinder car. It is now the purpose to show how this economy of current is accomplished, and it is all due directly to this breaker mechanism. It is accomplished by a combination of mechanical and magnetic arrangements, so that there is at all speeds of the motor a period of fixed duration when the point V is in contact with each of the cams K. This period of duration is the shortest possible and accounts for the current economy. It is as follows: As the cams K rotate in the direction of the arrow they contact with the point V and immediately the points P1 and P2 are brought together, and an electrical current passes through the primary winding PC, and immediately this current passes through the soft iron core C becomes magnetized, and acting as a magnet it pulls the plunger P down to it, as shown in Fig. 2. The moment the plunger P is drawn down it falls beneath the point V,, as shown in Fig 3, so that the circuit is broken. There is thus a rotary movement of the cam K and also an up and down movement. It is this quick down pull of the plunger P and the cam K away from the point V which makes the point of contact so short and only allows of one spark to pass.

The mechanical construction necessary to accomplish this consists in the plunger P being free to slide up and down in slots in the rotating spindle B and a spring S is provided to force this plunger upwards as soon as the primary circuit is broken and the core C ceases to be a magnet. The instant this circuit is broken the spring S forces the plunger P upwards so that by the time the next cam K contacts with the point V it is on a level with this point, as illustrated in Fig. 2. At high speeds the duration of contact is so short between the cam K and the point V that the magnetic action and consequently the up-and-down movement of the plunger P is not necessary, and it is consequently effective only at low speeds when the contact would be of sufficient length to waste the current.

NEW HONEYCOMB—TYPE OF McCORD RADIATOR

A RADIATOR without a joint or seam of any nature in the body or radiating portion is being brought out by the McCord & Co., Detroit, Mich. In this new radiator the body or radiating part is composed of a single copper block, which is made up of hexagonal air tubes, leaving the spaces between these tubes for carrying the water, and so giving a true honeycomb construction. Fig. 4 shows a front view of this radiator and discloses the entire radiating center, which, as already stated, is made from one piece of copper. The first time a radiator of this nature was publicly exhibited in America was at the Grand Palace show in New York, this season, when several de Dion pleasure cars were fitted with radiators formed in this way. This radiator is of French design and manufacture and known as the Le Sans Soudure, meaning without solder. McCord & Co. have acquired the sole manufacturing rights for America of this radiator from the Societe des Radiateurs et Refrigerateurs at St. Owen. These manufacturing rights have been secured under the foreign and domestic patents of this French concern. At present the McCord & Co. have an engineer from the French factory at its Detroit plant superintending the installation of apparatus and machinery for the manufacture of this solderless radiator. It is needless to state that the value of this type of radiator is in its increased efficiency and also the freedom of leaking at joints.

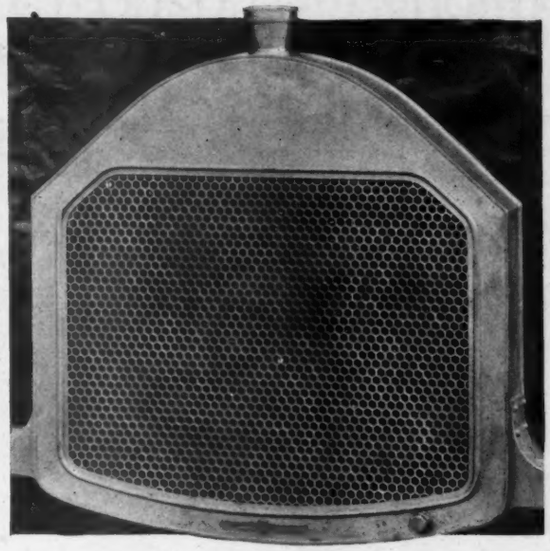


FIG. 4—McCORD RADIATOR

MOTORISTS' BOOKMAN

"A Book of the Black Forest" is an interesting account of C. E. Hughes' observations and records taken during a stay of many vacations spent in the region. He begins by taking the reader back, briefly, to the times when the invasion of this forest was mostly by warlike armies, and gives a synopsis of its troublous history. This brief resume is a fitting introduction for the reader, preparing him for an entrance with the author into its domain. A river and a railroad run through its whole length. The Kinzig valley is a natural division, not only separating the land, but affecting the habits of the people. He makes his entrance by this valley and introduces the reader by slow advances to the scenery, the industries and customs of these forest people.

The book, though historical in its make-up, deals more particularly with the fascination of the Black forest country, the quaintness and the legends of its people. There are short descriptions of the villages, monasteries and churches, with the accompanying legends supposed to account for their beginnings and locations. In fact, every old castle has its ghostly inhabitant, some of them more than one—rivaling the blood-curdling experiences of Tam O'Shanter when his mare lost her tail. The whole country teems with fairy tales and legends of magic. Even the witches have found a home and organized a society there, where they recruit their numbers, riding on broomsticks or pitchforks, still drawn by flying cats.

The homes of these quaint people are built on a unique plan, and though often found on the level, the design is for the hillside, there being entrances for the people as well as for the animals, all finding shelter under the one roof. "An upper ground floor is the hay barn, with an entrance big enough to take a loaded cart. Below are the living rooms for the humans, and elsewhere those for the beasts. The rooms for human occupation can always be distinguished from the outside by the windows and balconies, on which open many doors. * * * The great stove is the focus of domestic activity, and a little niche is given over to an altar for religious rites, but the warmest and most comfortable places are reserved for the old people." The wedding ceremonies of these Black forest folk are tremendous affairs, and the feast is so abundant, the author says, that guests not infrequently carry home enough to keep their families for 2 days. Not all these people are mediæval, exactly, he says; they do progress, after their lights. The timber trade is the real native industry of the Black forest. "The forests are still, irrespective of ownership, carefully supervised by government officials of the state and towns which are owners. Trees may be cut down only subject to well-framed laws, one of which is that a new tree must be planted for each old one that is removed." The book is profusely illustrated, printed in clear, coarse type, making it an easy one to read, and is from the press of E. P. Dutton & Co., New York. Motorists contemplating a tour in Germany will find this interesting.

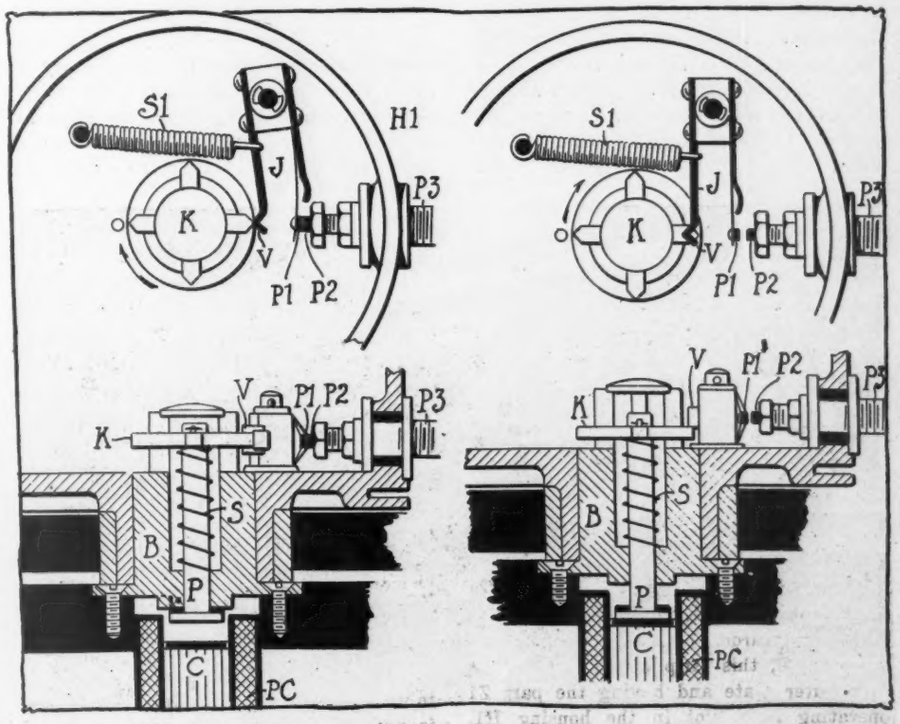


FIG. 2

The B. & S. Breaker Mechanism Showing Cam K in Contact with Blade V and Platinum Points P 1 and P 2 Together. The Plunger P Is in the Up Position.

FIG. 3

The B. & S. Breaker Mechanism Showing Cam K Fallen Away from Blade V Thereby Allowing Platinum Points P 1 and P 2 to Separate.

Among the Makers and Dealers

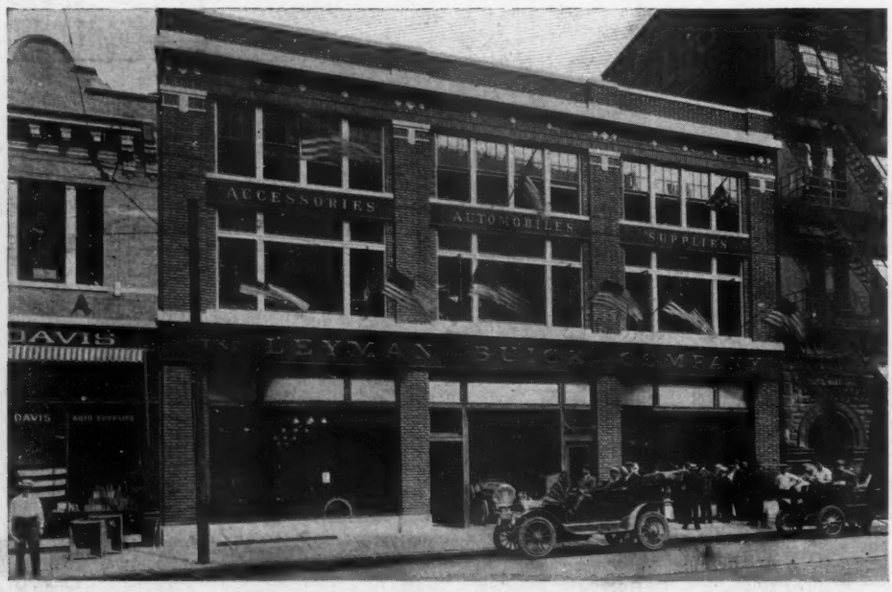
1910 Salesmen's Convention the Firestone Tire and Rubber Co., Akron, Ohio

1. H. E. Riker. 2. R. E. Wolcott. 3. F. H. Moyer. 4. L. Greenwald. 5. C. A. Myers. 6. Ole Hibner. 7. W. E. Fouse. 8. A. W. Moore. 9. H. L. Beers. 10. J. P. Patterson. 11. K. R. Corner. 12. H. Kubler. 13. C. H. Gerhold. 14. P. B. Talbott. 15. E. M. Pumphrey. 16. H. C. Brenizer. 17. J. W. Thomas. 18. E. P. Palmer. 19. L. F. Birdsong. 20. A. L. Schavoir. 21. O. E. Johnson. 22. F. C. Burt. 23. H. E. Esterly. 24. F. W. Telford. 25. R. L. Harpham. 26. F. M. Moore. 27. G. M. Martin. 28. Geo. Eckel. 29. P. F. Rohrbacher. 30. C. M. Folger. 31. G. A. Talbott. 32. W. H. Jenks. 33. N. B. Burwell. 34. H. W. Makley. 35. W. F. Ridge. 36. W. G. Bedford. 37. R. D. Barr. 38. R. W. Phelps. 39. R. W. Ingersoll. 40. J. F. Cast. 41. Wm. O'Neil. 42. W. A. Simonson. 43. W. L. Esterly. 44. J. H. Irwin. 45. T. E. Gahagan. 46. W. A. Clark. 47. C. C. Eichelberger. 48. S. N. Harris. 49. J. G. Robertson. 50. S. G. Carkhuff. 51. R. J. Firestone. 52. H. S. Firestone (Pres.). 53. A. C. Miller. 54. Will Christy. 55. T. J. Glenn. 56. E. L. Campion. 57. W. F. West. 58. W. A. Harshaw. 59. O. Fenstermacher. 60. A. F. Sheldon. 61. R. H. Turner. 62. W. C. Mayville. 63. C. E. Jackson. 64. J. V. Mowe. 65. D. C. Swander. 66. W. R. Walton. 67. F. H. Martin. 68. Chas. Habhegger. 69. W. H. Rowerdink. 70. R. E. Warner. 71. A. G. Partridge. 72. O. A. Lazenby. 73. F. L. Black. 74. W. T. Brown. 75. D. B. Price. 76. J. A. Smith. 77. J. F. Singleton. 78. E. S. Firestone. 79. W. W. Robertson. 80. P. B. Bosworth. 81. B. N. Beedon. 82. D. F. White. 83. W. F. Bailey.

MAKES Sales Record—Fifty-three Rapid trucks in 53 days is the record, made by W. H. Barnes, of Seattle.

De Dion Sued—Another suit for infringement of the Selden patent has been filed against another importer in New York. The latest suit is against the de Dion-Bouton Automobile Selling Branch and the suit is for an injunction, damages and profits. The suit is titled the Columbia Motor Car Co. and George B. Selden against Emanuel Lascaris, trading and doing business under the registered trade name of de Dion-Bouton Selling Branch.

Strike Settled—The strike of woodworkers at the plant of the Charles Abresch Co., Milwaukee, Wis., builder of motor car bodies, has been settled and the factory is again operating at full force. The strike resulted from a change from the wage to the piece-work system. The company claims that as some men finish a body in 20 hours, while it took others 60 hours to do the same, the wage basis is unfair. The strikers have accepted the piece-work system.



Store of the Leyman-Buick Co. of Cincinnati

Another Fiat Recruit—Cash F. Baker, Toledo, O., for the past 2 years sales manager for the American Motor Car Co., has joined the forces of the Fiat company, having accepted the position as assistant manager of the Chicago branch.

Coast Home for Cartercar—The Cartercar Automobile Co. will move its San Francisco agency for northern California into a new home on the corner of Golden Gate avenue and Polk street in the near future. The Cartercar has been a rapid seller in California. Three carloads a week are being handled at present and it is expected that this will soon be increased to six.

Tarkio's New Garage—The present home of the Tarkio Automobile Co., of Tarkio, Mo., was built last winter from the profits of 3 years' business. The inside dimensions of the show and storage room are 100 feet by 50 without a post, pillar or partition. The repair shop is 50 by 30, without walls or pillars. There is a cool vault big enough to store 100 outer casings; a display case sufficiently large to show all sorts of accessories. There is a public and a private office and a window big enough to show the full profile of a 120-inch wheelbase car. The building is heated throughout with hot water, lighted by electricity and lacks no detail of convenience found

in any garage anywhere. In addition quarters for two men have been fitted up in the building, so that somebody, night or day, is always on the job.

Cartercar Branch in Chicago—The Cartercar Co. has completed arrangements for opening a branch in Chicago. A lease has been closed for a showroom at 324 Michigan avenue. Charles E. Hammerly, who has had the agency for the Cartercar for many years in Chicago and owns a garage at Harrison and Oakley boulevards, has been secured as branch manager. Only a few weeks ago the Cartercar Co. opened a New York branch at the corner of Broadway and Seventy-seventh street.

Owen Branch to Open—On Saturday R. M. Owen & Co. will open their large Reo and Premier Newark branch at the corner of Halsey and Pearl streets. The management will be under the direct supervision of R. E. Ingersoll, who has been the New York branch manager for R. M. Owen & Co. since 1907. There is to be an elaborate musical program on the opening day, and a sumptuous buffet lunch is to be served between 10 a. m. and 3 p. m. to all members of the Reo and Premier family and to their friends.

Plans Model Garage—President Walker, of the Lorraine Motor Co., of Philadelphia, has closed a contract with the Philadelphia Housewrecking Co., for the clearing of a large plot of land at Thirty-seventh and Ludlow streets, upon which a model garage will immediately be erected. All the appurtenances of a first-class club will be included in the equipment of the second floor, which will include apartments fitted up for women on one side of the new building, a suite of rooms for men on the opposite side and a reception room leading to the main floor. Eighty cars will be stored in the building. The Pierce-Racine and the Allen-Kingston are the cars which the Lorraine Motor Co. will handle. The officers of the company are: W. L. Walker, president; Joseph Booth, vice-president; E. Moore, treasurer; J. L. Larson, Dr. Ruel Stewart, Joseph Booth, George T. Cutler and W. L. Walker, directors.

Ralston Is President—C. A. Ralston is president and general manager of the Rogers Motor Car Co., of Omaha, Neb., which is now engaged in turning out its first 100 cars.

Making Inner Tubes—Pittsburg capitalists have formed the Pennsylvania Time Test Co., which will exploit a new indestructible inner tube for motor car tires. The company has been incorporated in West Virginia with a capital of $50,000, and W. O. Turrell is general manager. E. S. Frishkorn will look after the western Pennsylvania territory.

Good Business in Grand Rapids—That the 1911 season will be a record one in the sale of cars in Grand Rapids, Mich., is the concensus of opinion among dealers there. Already a large number of 1911 cars have been delivered in Grand Rapids and neighboring towns and the only reason more have not been placed is because the dealers have been unable to get them. In some cases cars for demonstrating purposes have had to be sold. A number of dealers have been forced to decline orders where immediate delivery was imperative.

St. Louis Dealers Meet—At the regular monthly dinner of the St. Louis Motor Accessories Association George C. Diehl, chairman of the American Automobile Association good roads board, was the principal speaker. The meeting was attended by the largest gathering of members in its history, and several new firms were elected to membership. The question of a fund to aid the good roads project in and around St. Louis was taken up with renewed energy. Donations were made by a number of those present at the meeting, in addition to the contribution which had already been promised by the club. It was decided to ask each of the motorists in St. Louis to make a contribution to this fund, no sum no matter how large or how small being refused. The money will be used to repair the roads in St. Louis county.

GARAGE OF TARKIO AUTOMOBILE CO. OF TARKIO, MO.

Tire Branch Moves—The Hartford Rubber Works Co.'s Boston branch has removed to its new building at 863 Boylston street. The five-story building which has just been erected will be occupied entirely by the Hartford Rubber Works Co.

New Plant in Muskegon—The Motor Specialties Co., of Muskegon, Mich., is erecting a plant on Water street which will contain upward of 24,000 feet of floor space and will afford employment for 200 men. Specialties for gasoline motors are the product.

Santa Ana Dealers Organize—The dealers of Santa Ana, Cal., have organized an association and elected W. H. Kelly president and Walter Congdon secretary. The membership consists of Glenn Martin, the Guarantee garage, the West End garage and the Broadway garage.

Chillicothe After Plant—Chillicothe, O., is pretty sure of landing a good car plant shortly. C. O. Snyder, of New York City, has been looking over the prospects for a local company which is headed by F. C. Arbentz and contracts have been signed. The company proposes to build a touring car which was invented by Mr. Snyder. It will build runabouts and torpedo cars later. Mr. Snyder was connected for many years with the Hewitt people at Detroit, Mich. The new car has not been named as yet, but the company expects to build at least 200 the first year.

Inspect Car Plants—Thirty-two leading implement dealers from Pacific coast states inspected the numerous motor car plants at Racine and Kenosha, Wis., while in these cities to visit their implement manufacturers. The result of the visit is already apparent in the request for agency territory. While the dealers do not admit that their wagon and carriage business is nearly at an end, they have been very anxious to get into the motor vehicle business and will be well established when the time comes that vehicle business has given way entirely to the motor car.

Firestone Annual Convention—Each September the branch managers, agents and salesmen of the Firestone Tire and Rubber Co. gather in Akron to listen to words of President H. S. Firestone and to discuss tires and selling plans for the coming season. This year's convention exceeded all previous ones in numbers and enthusiasm, for the Firestone company has enjoyed a rapid growth in attaining its present commanding position in the tire industry. The accompanying illustration shows the site of the new plant which will include the largest single building in the world devoted to tire manufacture, it is claimed. President Firestone announced that the new plant will be put into operation next February.

Brief Business Announcements

LANSING, MICH.—The New Way Motor Co. has increased its capital from $100,000 to $350,000.

New York—The Overland Sales Co. has opened its new salesroom at 1599-1601 Broadway, with C. T. Silver as president.

Seattle, Wash.—Hughson & Merton, Pacific coast representatives of Ajax tires, have moved into a new store at Pike street and Tenth avenue.

Columbus, O.—The Fitz Motor Co., recently organized in Columbus, has taken the central Ohio agency for the Cole, Krit and the Beyster-Detroit.

Seattle, Wash.—D. T. Hess has been named as the new manager for Hughson & Merton in Seattle, and larger quarters have been secured at 924 East Pike street.

Philadelphia, Pa.—Arthur W. LaRoche is now selling Warren-Detroit cars for the Philadelphia branch of the Taylor Motor Distributing Co., 210-212 North Thirteenth street.

Cleveland, O.—The Cleveland Electrical Repairing Co. has opened a storeroom at 2025 East Twenty-second street. Manager F. H. Clark was manager at the Peerless factory for 6 years.

Philadelphia, Pa.—The Penn Radiator Repair Co., the pioneer concern of its kind in Philadelphia, now located at 1328 Arch street, will shortly move into larger quarters at 1318 Race street.

Boston, Mass.—The Velie Motor Vehicle Co.'s Boston branch has closed contracts for the 1911 season with the Sterling Auto Co., Fall River, Mass., and the C. F. Woodworth Co., Providence, R. I.

Cleveland, O.—The Vail Motor Car Co., agent for the Empire and Clark lines, has purchased the Raymond garage in Carnegie avenue, where it will continue the garage and add a large repair and machine shop.

Washington, D. C.—The Luttrell Co., Packard agent, has erected a large salesroom at the corner of Connecticut avenue and Dupont circle, and will remove from its present quarters at 1317 H street, N. W., within the next 2 weeks.

Baltimore, Md.—The Sinclair-Scott Co., of Baltimore, manufacturer of the Maryland car, has moved its salesrooms from the Academy of Music building to Bush and Wicomico streets, where it will be run in connection with the factory.

Albuquerque, N. M.—J. S. and Clarence Lovern are to open a large garage in the Whitney warehouse at the corner of first and Marquette streets. The Chance Brothers Auto and Implement Co. has started the erection of a 30 by 32-foot addition on the rear of its garage. The new building will be used as a machine and smith shop.

Detroit, Mich.—The Michigan Motor Truck Co. has increased its capital from $1,000,000 to $1,100,000.

Syracuse, N. Y.—R. H. Durston states that he will continue to represent the Overland and Marion cars here during the coming season.

Detroit, Mich.—The Warren-Detroit Garage and Sales Co. has moved into the garage formerly occupied by the Winton company at 736 Woodward avenue.

Syracuse, N. Y.—The Willis Motor Car Co. has moved into the newly completed garage at 826 Montgomery street, the new home of the Oakland, Oldsmobile and Rapid truck.

St. Louis, Mo.—F. L. Hendricks, recently with the White company in Chicago, has been made manager of the White Garage Co. W. E. Corby will remain with the organization in the selling department.

Baltimore, Md.—The Zell Motor Car Co. will have the agency for the Hupmobile for the state of Maryland and Washington. This firm also holds the agencies for the Chalmers-Detroit, Peerless and Hudson.

Greeley, Colo.—The Weld County Automobile Co., just organized by business men of Greeley, will open a new garage and repair shop about November 1. D. R. McArthur is president and Charles Davis manager.

East Palestine, O.—The McGraw Tire and Rubber Co. has added ten new tire-builders to its force and also has installed two new boilers. This doubles the capacity of its plant and gives it a total of fifty tire-builders now working.

Louisville, Ky.—The Urwick Machinery and Supply Co., 331 West Main street, has taken the agency for the Marmon. A temporary garage will be opened on Third avenue near Breckinridge street, but the permanent Louisville home of the car will be located at Brook and Broadway.

Los Angeles, Cal.—One of the largest business deals of the month on the coast was the purchase of the Moore Motor Supply Co. in San Francisco and Los Angeles, by the Wienstock-Nichols Co., of San Francisco. This company handled Morgan & Wright tires in San Francisco.

Philadelphia, Pa.—Negotiations have been completed by William P. Herbert, head of the General Motor Car Co., with the Rauch & Lang Carriage Co., of Cleveland, O., for the agency in this territory of the latter's line of electric pleasure vehicles. The General Motor Car Co., which also represents the Lozier, likewise announces three additions to its selling organization—Keene Carruthers, of New York; A. Paul Oliver and Thomas J. Denney.

Cleveland, O.—W. A. Logan has recently been added to the sales force of the Cleveland Rauch & Lang Co.

Cleveland, O.—E. Winkes, formerly with the Rambler branch, has accepted a position with the firm selling Maxwell and Columbia cars.

Philadelphia, Pa.—The Howard Demountable Rim Co., formerly located at 1411 Race street, is now installed in new headquarters, 324 North Broad street.

Bakersfield, Cal.—J. A. Hanke, of Santa Ana, has leased the old Bakersfield garage room in the opera house building, where he will handle the Maxwell and Columbia cars.

Waukegan, Ill.—H. E. Williams has opened a new garage at the corner of Sheridan road and Madison street, Waukegan. The agencies for the Cole 30 and Clark have been turned over to him.

Cleveland, O.—The Cuyahoga Mfg. Co. has been incorporated with a capital of $10,000 to manufacture and sell motor cars, carriages and bicycles and also airships. The incorporators are William F. Bonnell, J. E. Rawson, Edward A. Farrell and Rob Roy Alexander.

Philadelphia, Pa.—The new garage of the Woods Electric Co., on Twenty-first street above Market, is rapidly assuming definite proportions. It is expected to have the garage proper ready for business October 15 and the entire building completed by the first of the new year.

St. Louis, Mo.—The Hartford Motor Car Co. will occupy at once its new building at 5883-87 Delmar boulevard. One of the features is a huge elevator. In addition to the local agency for the Pope-Hartford, the company will handle Overland cars, and will maintain an accessory department. The capitalization is to be increased from $50,000 to $150,000.

Portland, Ore.—J. L. S. Snead, formerly of San Francisco but now of Portland, has opened a branch distributing office for the Krit Motor Sales Co., at 276 Union avenue. Portland will be the distributing station for the northwest for the Krit, which is making its first appearance in Washington and Oregon.

Boston, Mass.—There has been a dissolution of the Oldsmobile-Oakland agency in Boston, which has been in force 2 years. The Oldsmobile company has established what is to be the New England headquarters for the sale of its cars and George W. Houk, who has been in charge of the combined agency for some months will be

manager of the Oldsmobile branch. Just what the Oakland will do has not been announced.

Portland, Ore.—J. W. Leavitt & Co. have opened offices in Portland, and will handle the Overland car in Oregon.

Washington, D. C.—Ralph Barnard has taken the Stoddard-Dayton agency and will have headquarters with the Carpenter Automobile Co.

Boston, Mass.—T. A. Walter, who has been with various agencies in Boston during the past few years, has been added to the Inter-State sales force by Manager Victor A. Charles.

Des Moines, Ia.—The Campbell Automobile Co. will occupy the main floor of the Dickerson building, at 209 West Walnut street temporarily until the new garage is completed. It will handle the Rambler car.

Detroit, Mich.—The Keeler-Hupp Co. has been disbanded and the Hupp Motor Co. has established a branch for the sale of Hupmobile at 730 Woodward avenue, called the Detroit Hupmobile Sales Co., under the management of W. J. Doughty.

Boston, Mass.—Albert M. Pearson, for a long time connected with the truck department of the Packard branch at Philadelphia, resigned last week to accept a place with the Boston branch of the White company as manager of the commercial department.

Chicago, Ill.—Seymour S. Gilbert, who has been associated with W. B. Ingwersen & Co. in the sale of the Atterbury-Buffalo truck, has accepted a position with the Welch Brothers Motor Car Co., Milwaukee, Wis. He will direct his attention to the sale of the Packard truck.

Washington, D. C.—David S. Hendrick has leased 1317 H street N. W., formerly occupied by the Luttrell company, Packard agent, which has opened a new salesroom at Connecticut avenue and Dupont circle. Mr. Hendrick will handle the Thomas and Inter-State.

Detroit, Mich.—The Grant Brothers Auto Co. and the Winton company's local branch have removed to their new garages, 996-1000 Woodward avenue. The north half is occupied by Grant Brothers, with Chalmers and Amplex cars, and the southern half by the Winton company, with the Winton.

Washington, D. C.—The Zell Motor Car Co., of Washington and Baltimore, has been appointed agent for the Hupmobile for the District of Columbia and Maryland. The Hupmobile formerly was handled in Washington by the Wilson company, which has secured the Krit agency.

Boston, Mass.—Demarest Lloyd, owner of the American Automobile Co. in Boston, has sold out the business to F. S. Toby, and he retires from the motor field entirely. He has not made any plans for the future. Mr. Toby has been prominent in real estate circles. He will continue to handle the American and Krit cars, but will not carry the Cino and Ohio, which the company also handled.

Seattle, Wash.—W. D. Wallace, of the Olympic Motor Car Co., has recently taken the northwest agency for the Locomobile.

Sewickley, Pa.—The Anderson Automobile Co., recently organized, has moved into its new garage at Broad street and Centennial avenue.

Columbus, O.—The Central Ohio Motor Car Co., 61 East Spring street, has taken the central Ohio agency for the Buckeye truck, manufactured at Dayton, Ohio.

Los Angeles, Cal.—The Acme Electric Auto Works has moved its headquarters from 1610 South Main street to the junction of Main street and South Broadway.

Detroit, Mich.—Harry Neederlander, formerly of the Keeler-Hupp Co., has taken the Michigan agency for Haynes cars and has secured the garage at 846 Woodward avenue.

Minneapolis, Minn.—R. W. Munzer & Sons have taken on the Oldsmobile. No location for a garage has been secured. R. W. Munzer, Clarence I. Munzer and W. Warren Munzer compose the new concern.

Bakersfield, Cal.—Work has been started on the Southern garage at the corner of Twenty-fifth street and Chester avenue. It will be 122 by 132, a portion will be two stories and will cost about $20,000.

Boston, Mass.—The Oldsmobile company will open a branch house in this city at 97 Massachusetts avenue, with George W. Houk as manager. The new company will handle Oldsmobiles exclusively and the Oakland will be handled by a separate firm.

Columbus, O.—Papers were filed with Secretary of State Thompson recently by the B. F. Goodrich Co. of Akron, O., increasing its capital stock from $10,000,000 to $20,000,000 pursuant of the resolutions recently adopted by the board of directors. The increased capitalization will consist of 7 per cent preferred stock, most of which has been subscribed by the present stockholders.

Cleveland, O.—F. E. McClure, manager of the branch house that will be opened by the Brush factory, also will handle the Alden-Sampson truck.

Portland, Ore.—F. Sheffield, of Shaniko, Ore., left for the Hawaiian Islands the past week, where he expects to handle the Winton in Honolulu and vicinity.

New York—Plans have been filed for a three-story brick garage at 45 Downing street for Joseph Tassi, to cost $30,000. The building will be 29.7 by 85.

Cleveland, O.—J. B. Sperry, agent for the Henry car, has been appointed manager of the Warren Auto Sales Co., the Cleveland branch house for Warren-Detroit cars.

Washington, D. C.—The Hupmobile agency has been transferred from the Wilson Co. to the Zell Motor Car Co. This firm will also handle the Hupmobile in Baltimore.

Washington, D. C.—The Rauch & Lang electric will in future be handled by the Imperial Motor Co., which also has the White. The Motor Sales Co., formerly handled the Rauch & Lang.

Baltimore, Md.—The McMullan-George Motor Car Co., of Baltimore, which handled the Stearns in this city, has discontinued the salesrooms formerly in the Academy of Music building.

Boston, Mass.—F. S. Tobey has taken over the business of the American Automobile Co., formerly owned by Demarest Lloyd. He will handle American cars exclusively and the firm name will remain the same.

San Francisco, Cal.—The Thomas agency for central and northern California will be taken over by Leslie A. Hedger, George E. Billings and Roy C. Ward. The new agency will erect its own building on Van Ness avenue.

Long Beach, Cal.—W. L. Lynds, proprietor of the Pacific garage, 30 Locust avenue has secured possession of the room at 133 East First street, to be used as a salesroom. He is agent for the Maxwell, Duro and Krit cars.

St. Louis, Mo.—Fred Campbell, formerly St. Louis manager of the Goodyear Tire and Rubber Co., has purchased the accessory department of the Buick branch, which retires from the accessory business. The business is to remain for the present at 1134 Locust street.

Minneapolis, Minn.—The Fawkes Automobile Co. closed agencies for the Reo with the Sperl Auto Co., of New Ulm, Victor, St. John and Fairmont, Minn.; W. A. Crow, Minnesota, Minn., as well as agencies on Marmon and Reo cars in the following cities: Helena, Butte, Manhattan, Big Timber, Livingston, Miles City and Glendive, Mont.

Zanesville, O.—Flash Mfg. Co., capital stock $15,000; to manufacture a cleaning compound for motor car cylinders; incorporators, Edward B. Roemer, Alva Rea Stephen Mills, Jr., H. F. Achauer and John Rowe.

Wilmington, Del.—Pryor Water Motor Co., capital stock $100,000; incorporators, F. M. Shive, S. E. Roberson and H. W. Davis.

Wilmington, Del.—Walk Auto Tire Co., capital stock $125,000.

Columbus, O.—Simplicity Supply Co., capital stock $10,000; to manufacture motor car parts; incorporators, William Trostler, S. I. Rose, M. L. Fouts, C. J. Watson and J. B. Rosentein.

Columbus, O.—Warren Motor Sales Co., capital stock $40,000; incorporators, S. P. Holmes and others.

Columbus, O.—Cyriacks Motor Co., capital stock $15,000; incorporators, F. R. Cyriacks and others.

Brooklyn, N. Y.—Simplica Automobile Co., capital stock $2,000,000; to manufacture, sell and deal in motors, motor cars and vehicles; incorporators, Stuart L. Jaffray, S. J. Shlenker and J. McBrien.

Legal Lights and Side Lights

AMERICANS ARE PRIVILEGED

LACKING in federal law, America was unable to join Europe in the recent agreement to establish an international driving and car license. Consequently, Americans visiting Europe are obliged to take out a fresh car and driver's license for each country they visit. Even permanent American residents in Europe are not entitled to benefit by the international pass, for one of the articles of the agreement stipulated that the driver must be of the nationality of the country having signed the convention. The states are France, England, Germany, Austria, Hungaria, Belgium, Bulgaria, Spain, Italy, Monaco and Russia.

In the recommendation of the Automobile Club of France the French minister of public works has just announced that his government will take the responsibility of issuing licenses to persons of other nationality than French. Thus, although America offers no reciprocatory benefits, it is possible for an American motorist, on landing in France, to obtain an international driving and car license which will allow him to enter eleven countries without formality. This, of course, does not affect customs formalities, which are quite distinct from police regulations on drivers and cars.

During the present season a certain number of American tourists have been touring Europe with international passes obtained in England, but this does not appear to have been altogether in accordance with the convention, according to which it was clearly stated that the holders of the pass must belong to one of the countries having signed the agreement. The passes appear to have been given by the English motoring associations under a misunderstanding. The recent decision of France, which probably will be followed by other governments, removes all possibility of misunderstanding. It also creates the unusual situation of allowing Americans, who are obliged to have a separate license for almost every state at home, to run throughout the length and breadth of Europe without changing their tags. A European crossing the Atlantic receives no such benefit in return.

CONSIDER THE DRIVING

The facts in a recent Wisconsin case, Anderson vs. Sparkes, 125 Northwestern, Wisconsin, 925, in which it would seem that the owner was rather severely dealt with, considering his inability to see the plaintiff's rig, were these: The Columbus road, upon which the accident occurred, extends in an easterly direction from the village of Lodi, and is a much traveled public highway. The point of accident was about 250 feet east of the village limits, and the traveled portion at this point is about 18 feet wide, with a ditch on each side; there being also along the north edge of the traveled road a footpath used by pedestrians. About 50 feet east of the place of accident the road ascends, and from that point to the village limits the view is unobstructed. North of the road and about 600 feet west from the place of accident, is an electric light station, the light being suspended about 12 feet above the ground, but, owing to the slope from the location of the light to the highway, the light is about on a level with the highway. There were also other lights in close proximity to the highway. These lights had a blinding effect on the defendant, who was traveling toward them at the time of the accident.

The defendant was familiar with the road, was driving a car of standard tread, and had all but one of his lights lit. The defendant's evidence also shows that he was on the north side of the road, going west at the time of the accident. The plaintiff's evidence, however, shows that he had pulled his rig as far over to the south of the road as he could without getting into the ditch. The fact of the collision between the two vehicles, of course, demonstrates the inaccuracy of the evidence of one of the two parties. The question of facts was for the determination of the jury. Among other points, the lower court submitted to the jury the questions whether the car owner was using ordinary care in handling his car, and if not, whether such want of ordinary care was the proximate cause of the injury, and whether there was want of ordinary care on the part of plaintiff that contributed to his injuries. The jury found that against the defendant he was not using ordinary care and that plaintiff was not guilty of contributing negligence.

In another Wisconsin case, however, the facts as reported do not put the owner in an altogether favorable light, and the verdict against him would seem to be justified. In this instance the evidence shows that the plaintiff turned out to allow a passage, but that the defendant entirely failed to turn out, and, if anything, turned toward the plaintiff rather than away from him. The court in part, in Pfeiffer vs. Radke, 125 Northwestern, Wisconsin, 934, says, on appeal:

"There were ditches on either side of the road; the plaintiff had driven to the right as far as he could without going into the ditch on the east side of the road; the defendant as he approached the plaintiff turned his machine from the right side of the road toward the left; he passed so closely to the buggy that there was but from 1 to 2 feet between the west wheel track of the buggy and the east wheel track of the car; it had been raining, and the wheels of the car were splashing considerable water and slush from the wheel ruts in the road; and there was nothing to prevent the defendant from keeping entirely to the right side of the center of the road. In view of such evidence, the jury might have concluded that by turning the car to the left, toward the horse, and running so closely to the buggy that a collision was very narrowly averted, the wheels of the car at the same time splashing water toward if not on the horse, the latter became frightened, when it would not have become so had the car been driven nearer to the west side of the road, and that the defendant was negligent in veering his car to the left.

GUESSES AT RATE OF SPEED

In a recent Michigan case, Matta vs. Rapid Motor Vehicle Co., 125 Northwestern, Michigan, 708, it was claimed that a chauffeur of the Rapid company drove one of that company's cars at a speed in excess of the 10-mile rate prescribed by the city of Pontiac, and that while going at this excessive speed the car was driven against the plaintiff's team of horses and surrey, causing the horses to run away. On conflicting testimony a verdict was returned against the company, and on appeal judgment on this verdict was sustained. One of the principal questions raised on the appeal was as to the competency of evidence as to the rate of speed at which the motor car was going at the time of the accident. The court says. "The plaintiff testified that he had witnessed motor cars go by his place frequently, had seen them driven frequently, and that he had ridden in motor cars. He had the opportunity to see this motor car approaching for some distance, and he expressed the opinion that it was going at a very much higher rate of speed than 10 miles an hour, and we think this testimony was competent."

HORSE'S REPUTATION CONSIDERED

In an action for injuries from the frightening of a horse by a motor car, where there was no issue of contributory negligence, evidence of reputation of the horse was properly excluded, being inadmissible to show the character of the horse, and the question of plaintiff's knowledge being relevant only on the question of contributory negligence. This was in Cain v. Wintersteen, 128 S. W., Kans., 274.